

# MUNICIPAL JOURNAL AND ENGINEER

VOLUME XXII.

NEW YORK, FEBRUARY 27, 1907.

No. 9

Published every Wednesday by  
THE MUNICIPAL PUBLISHING COMPANY  
Flatiron Building, Madison Square  
New York City  
Telephone, 6723 Gramercy, New York

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## TERMS OF SUBSCRIPTION, PAYABLE IN ADVANCE

United States and possessions, Canada, Mexico, Cuba, \$3.00 per year  
All other countries . . . . . 4.00 per year

Make all checks payable to The Municipal Publishing Company.

Entered as second-class matter, January 3, 1906, at the Post Office  
at New York, N. Y., under the Act of Congress of March 3, 1879.

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## CONTENTS

Municipal Sidewalk Construction.....	195
Disposal of Sewage Sludge.....	195
Functions of the Police.....	196
Direct Legislation Defined.....	196
Constructing New York's High Service System (Illustrated), by F. E. Puffer.....	197
Cost of Smoke to Chicago.....	199
Garbage Problem at Reading.....	200
Duluth's Gas and Water Report.....	200
Sewer Ventilation and Sludge.....	201
Permission for Calumet Diversion Denied.....	201
NEWS OF THE MUNICIPALITIES.....	202
Legal News—A Summary and Notes of Recent Decisions.....	207
News of the Societies.....	207
THE WEEK'S CONTRACT NEWS.....	208
Patent Claims.....	215
Incorporations.....	215
Personals.....	217
Trade Notes.....	218

## Municipal Sidewalk Construction

IN most if not all the cities and villages of the United States the construction, maintenance and cleaning of the roadway paving is assumed by the city at large rather than by the property fronting thereon. Sidewalk paving, on the other hand, is generally constructed and maintained by the individual owners. Just why this distinction should be made is not particularly clear. It is true that it is commonly held that the private ownership extends to the curb, but in some cases it extends to the center of the street; it is also the fact that the objections to a diversity of paving in front of adjacent properties are more serious in the case of roadways than of sidewalks. But both are equally public in their use, and there are very important arguments in favor of sidewalk construction by the city. The public nature of sidewalks is recognized in various ways, one of these being the passing of ordinances limiting the construction to certain materials. In most

cities wooden walks are not permitted, and in many brick ones also are barred. It can hardly be questioned that it is desirable that all sidewalks on a given block should be of the same material, and constructed at the same time. For instance, in Pittsburg it is required (unless the ordinance has recently been changed) that brick pavements be given a slope of one inch in two feet, while for concrete and flagstone one inch in four feet is required, in consequence of which, if a brick and a concrete sidewalk be adjacent, there must result a jog in the surface, likely to cause accidents. And the same condition is generally found where an unpaved stretch joins a paved one.

Another argument for public construction is the probability that the work could be done much more cheaply. In recognition of this, several cities annually receive bids and let contracts for all concrete sidewalk work to be done during the year, this work to be actually ordered and paid for, however, by the property owners as private work, but at the price bid. It is but a step further for the city to actually take charge of all construction, and it is a step which several have taken, and which it would seem advisable for most cities to consider seriously.

## Disposing of Sewage Sludge

IN another column are related the difficulties of Wilkesden in getting rid of the sludge from its chemical precipitation works. The same trouble has been found in this country, and Providence, Worcester and other cities operating such plants are still struggling with the problem; and this was the principal reason for the brevity of the period of popularity of this disposal method. The septic tank was hailed as a solver of the sludge problem; but is generally found to merely reduce the quantity of sludge to be disposed of. Sprinkling filters require that a considerable part of the suspended matter be previously removed, thus creating sludge; and themselves discharge considerable quantities of solid matter at irregular periods, which matter it is generally thought necessary to remove by sedimentation. While chemical precipitation produces more sludge than any other of the common methods, half as much, approximately, seems to be necessary by any method producing equal purification; even intermittent filtration leaves a considerable amount of organic matter to be disposed of, although in a condition giving little offense. Sewage disposal, from one point of view, therefore resolves itself into the problems of removing as much suspended matter as possible, and of putting it into a form as little difficult to dispose of as may be. And the latter is much further from satisfactory solution than the former.

## FUNCTIONS OF THE POLICE

"I KNOW no body of men and no occupation of men which contributes day after day and generation after generation more distinctly than you to that consummation of human society, 'Peace on earth to men of good will!'" With these words President Eliot, of Harvard, closed an address to the Patrolmen of the city of Boston a few days ago. Referring to the function of the police, he stated that the police *force* is properly so called. "That means that it is an organization for using force in maintaining order, in seizing offenders, in protecting property, in preventing crime. In all these ways a police force is intended to use force, and government provides it expressly for that purpose." Comparing the police with the army and navy he said:

"What is your force chiefly used for? It is used chiefly for protection, for defense, for maintaining public order and peace. You go, for instance, quickly to every catastrophe which happens—a fire, an explosion, an accident. Any catastrophe of that nature calls you. What for? To help. You may have to use force, but you use force to help and not to destroy. You have to protect people in the streets, prevent confusion, maintain order, prevent or abolish nuisance, execute those regulations of the city, town or village which relate to sanitation or public health, and in general to the preservation of the public peace. The people that you use force on are generally those that are disturbing, troubling, annoying others, injuring others, committing violence, in short. Your function is in the main preventive of suffering. Your function is largely watchfulness."

The soldier, on the other hand, has as his object "killing and destruction—out-and-out destruction; and the more destructive he is the more effective in his calling. Moreover, he does not act habitually and consciously against wrongdoers . . . but persons who, from their point of view, are no more wrongdoers than he." The police, fully as much as the soldier, serve to keep alive, and offer examples of, courage, boldness, promptness and heroism. There is, he states, nothing strange about the use of force in a government which makes much of the liberty of the individual. "It is notorious that American militia or police will attack a mob with greater energy and promptness than will English troops or police. The reason is that in a republic the government of the moment feels that in using force to suppress disorder it is doing it in the interest of the entire people. Class governments are always afraid that they will be accused of using force in the interest of their class. Republican officials never feel that. Hence the freedom with which the public force is used in our communities to repress violence."

In the striving for universal peace, one of the first steps will be, not the abolition of police or of force, but the extension of the idea. What is the way to universal peace between nations? "Just the extension to nations of police force conception and practice; just the extension to nations of the use of a public force to maintain order and peace, and to protect the weak against the unjust

strong, and the well-disposed majority against the ill-disposed or reckless minority—the use of the combined force of all civilized nations as a police force against offending potentates, tribes or nations."

And the angel's song (correctly translated) "Peace on earth to men of good will." is a consummation which police force tends strongly and steadily to bring about—to men of good will; to others the days of peace have not yet come.

### Direct Legislation Defined.

IN recent literature concerning municipal government the terms "direct legislation," "initiative," "referendum" and "recall" find frequent place, but it is possible that many have a somewhat hazy idea as to just what is meant by these expressions. Mr. D. F. Wilcox, in a paper before the Michigan Press Association, explained the significance of these so clearly that we quote his definitions practically in full.

*Direct legislation* is a term commonly used to include three instruments for the expression of the people's will, the initiative, the referendum and the recall.

*The Initiative* is the power of the people by petition to force issues to a vote and by majority vote to enact laws and constitutional amendments. In other words, the Initiative is the power of a certain percentage of the electors to make motions and force a vote, just as, in any parliamentary body, every member has a right to present a resolution and a small proportion of the members acting together have the right to demand a roll call.

*The Referendum* is the right of the citizens to require that any measure proposed and enacted by their representatives in the legislature shall be submitted to the people themselves for their approval or disapproval before going into effect.

*The Recall* is the right of the people by petition of a certain percentage of their number to require any public official in whom they have lost confidence to submit himself in the midst of his term of office to a vote of approval or disapproval at the hands of his constituents. Other candidates may be presented at the special election called for this purpose, and the official whose conduct is called in question will be immediately discharged if he does not receive more votes than any other candidate.

The Initiative, the Referendum and the Recall are based on the theory that suffrage itself is a public function and that the electors of the State should have ultimate control of the policies of the State.

These would, it is claimed, restore to the people their original power of instructing their representatives and compelling them to heed; would make it impossible for legislators to be certain of "delivering the goods;" would enable efforts at reform now futile to be turned into effective channels, and encourage more general individual interest in public affairs; and in general would weaken the machine and strengthen the individual citizen.

There is, in various parts of the country, considerable agitation in favor of adopting one or more of these features, especially the recall, which Los Angeles has tried with success.



## CONSTRUCTING NEW YORK'S HIGH SERVICE SYSTEM

### Organization of Construction Gangs—Outline of Distribution System—Methods of Handling Pipe—Difficult Construction in Rock and Water—Novel Machine for Testing Mains

By F. E. PUFFER

FROM the point of view of the constructor, the High Pressure Fire Service now being installed in New York City presents some points of interest and originality. Certain features of the construction were made necessary by the demand for the utmost speed in perfecting the protection of the enormously valuable fire hazard of the district. The work was let in three sections, Southern, Middle and Northern. The Continental Asphalt Paving Company, Hugo Reed, President, was the lowest bidder on all three sections, the total of the bids amounting to \$2,824,282, and the contract was awarded to it on December 29, 1905. That an asphalt paving company should be the lowest among seven bidders on a pipe contract was a matter of surprise to some people. Perhaps the necessity for speed in execution of their contract, and the training which the necessities of the business had placed upon managers of asphalt paving work to put speed above all other considerations, had much to do in determining the company to undertake the work. For the carrying out of the contract they associated with them Mr. William G. Root, a civil engineer experienced in local paving work and general contracting as well, and Mr. Stewart M. Neff, a civil engineer of twenty years' experience in handling pipe work.

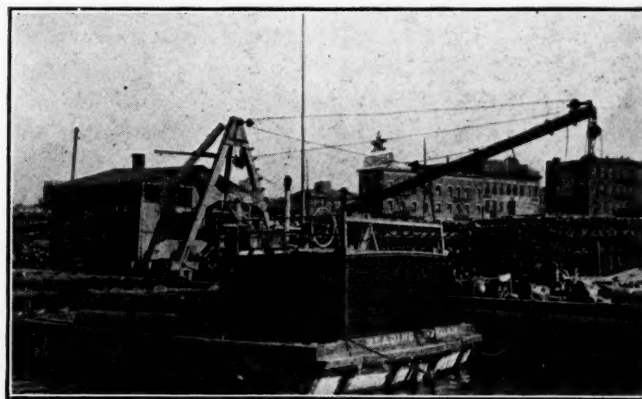
The headquarters of the company are the President's and General Manager's offices, 42 Broadway, in the financial district, and not far from the office of the Department of Water Supply, Gas and Electricity, under the direction of whose Chief Engineer, I. M. DeVarona, the work is done. The superintendent's office is a temporary building located near the docks where materials are received and stored, and where tools and machinery can be overhauled and repaired. The superintendent of the storage yard, also a civil engineer, has quarters in the same office. Telephone connections are, of course, provided for the office, and an automobile, a mechanism of scarcely secondary importance in the handling of extended work in a large city, is kept especially for the use of the general officers.

The organization in the field consists at its maximum of about ten gangs, each under a competent foreman. The size of these gangs and the work accomplished have varied widely. Sometimes a gang would lay five hundred feet of pipe a day, and some of the gangs were not engaged in the actual work of pipe laying at all. The work to be done consisted of laying mains, setting gates, hydrants and other appurtenances in the so-called dry goods district, where fire losses have hitherto been the greatest, an area running about 11,200 feet north and south, and 5,200 feet in width. This area is bounded on the south by Chambers street, on the west by the Hudson river, on the north by Twenty-third street, and on the east by Broadway, between Twenty-third and Fourteenth streets; by Third avenue, from Fourteenth to Fourth

street; by the Bowery to James street, where, on the river front, one of the pumping stations is to be located. The other pumping station is at Gansevoort street, at the corner of West street.

The general scheme of the distribution system is as follows: Two 24-inch discharge mains leading from each station, bound the entire area to be protected and run from one station to the other. Sixteen-inch and 12-inch pipes are to run in streets parallel to and intersecting these mains, and are fed by 20-inch mains, which cross them at frequent intervals. The 12-inch mains are only used for lateral branches and are not depended upon as arteries for carrying the supply. The intersections of both the 12- and the 16-inch mains with the 20-inch mains are so numerous that water will have to travel only a short distance through a main smaller than 20 inches before it reaches the hydrant from which it is to be drawn. All mains are cross-connected at the points of intersection, and gates are located at the end of every block, except that in the case of 24-inch mains the gates are two blocks apart. An 8-inch valve is placed in the 8-inch supply line to each hydrant for use in making repairs to the same. Altogether there are to be 60 miles of pipes, 934 gates, and 1,272 hydrants.

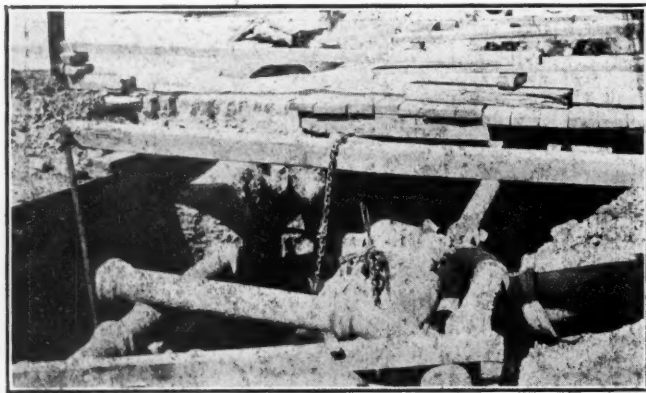
The delivery of castings for this work began on April 15th, and ground was broken for laying mains on May 6th. As storage yard for the pipe and castings there was selected a lot 220 x 125 feet at a bulkhead on the North river at 21st street. In order to store the pipes and castings in an orderly way, each kind by itself, on so small a lot, lumber yard methods had to be adopted. Each kind of pipe is piled by itself, frequently to a height of over 20 feet. The handling is accomplished by a portable derrick moving on a track parallel to the bulkhead line. The tackle takes the pipe from the deck of the boats on which delivery is made, or the special castings from the hold, and places them on a wagon; or if the



METHOD OF DELIVERING, STORING AND HANDLING PIPE

specials are to be stored they are placed on a hand-car running on a track parallel to the bulkhead, except at one end of the lot, where the track turns at right angles and runs the depth of the lot. Alongside of this track is another derrick by means of which the castings are transferred from the hand-car to their proper piles; and later on they are transferred from the piles to the wagons by again using the car and first derrick. The heaviest casting to be handled weighs three tons. In the piles each casting rests on wooden blocks. Varying quantities of pipe and special castings are carried in the yard, amounting at times to as much as \$200,000 in value. At the present time, when comparatively little work is going on, an immense stock of specials is being accumulated. During the past summer the work was retarded at times by a shortage of bends, and it is intended to guard against this trouble during the coming season.

The excavation of the ditches for the pipe for the most part has not presented many difficulties except such as are incident to conducting such work in streets of heavy traffic, and where there is a network of pre-existing pipes, such as is illustrated in the cut. Some work, particularly at intersections, has to be done at night. On Twenty-third and some other streets, rock was found close to the surface. As blasting in that location would hardly be safe, the rock was removed by wedges driven into numerous holes made with "Little Hartzog Drills," which are supplied with compressed air from a compressor and gasoline engine located on the side of the street. This rock excavation is paid for by the city at the rate of ten dollars per cubic yard, and is said by the contractor to be an unprofitable item. Another difficult piece of excavation is that being done for the two 36-inch salt-water intakes for the Gansevoort pumping station. These pipes for the whole distance of 600 feet run through filled ground, and are four feet or more below mean low tide. The shoring for these ditches is unusually substantial, and will, of course, be left in place. The ditch is kept dry by a tile drain placed below the intake pipes, draining to a low point, from which the accumulated water is pumped. As dirt is excavated from the trench, it is loaded into a bucket and swung by a portable derrick placed on a movable platform, and deposited as back-filling over the finished pipes. In all instances surplus excavated mate-



ONE CLASS OF DIFFICULTIES MET WITH

rial is hauled away by contracts. In replacing the pavement over the excavation in the asphalt streets, the Continental Company, although having asphalt repair gangs of their own, must hire the company that originally laid the pavement to replace it.

About the same time that excavation begins, pipes are hauled to the street and laid alongside the curb. In the matter of specials the needs of the work cannot always be foreseen because the pipes are not laid according to exact line, but are worked around such obstructions as may be found in their way. In one instance, in order to avoid damage to two trees in a little park, Jackson Square, the line was carried to one side by curved pipe at an extra expense of \$300. The straight pipes are lowered to place by a four-legged derrick of original design, as shown in the cut; the rope passes under the stiff leg of the derrick, not above it, as is usual. Two steel blocks are used, from the lower of which is suspended a ring with a pair of sister hooks; these hooks catch in the eyelets of an iron rope which circles the pipe twice and gives a firm hold while it is being lowered into position. When in position the pipe joint is filled with jute and lead and thoroughly caulked. Two grooves, both in the spigot and bell ends of the pipe, are intended to add strength to the joint and keep it tight. According to the results of a laboratory experiment, a joint made in this way stood a pressure of 750 pounds to the square inch without yielding. For setting hydrants, another style of derrick is used, which is simply a light iron pipe four-legged derrick with a differential hoist, as shown in the cut.

When a suitable section of pipes has been laid and jointed it is ready for testing, which is done at a pressure of 450 pounds to the square inch. In testing, the pipe line is first filled with water from the city hydrants. A hand pump then puts the pressure up to 450 pounds per square inch, which is maintained for ten minutes. The

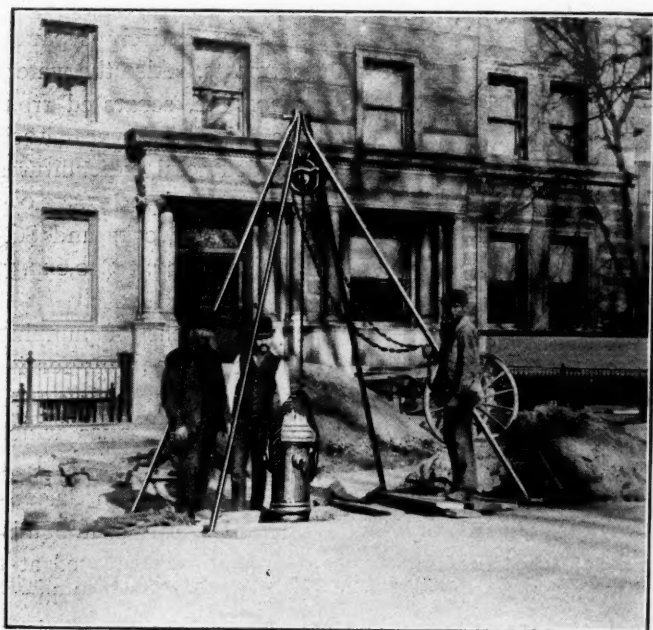


LAYING 24-INCH PIPE, SHOWING DERRICK AND PIPE SLING



maximum rate of leakage allowed is four gallons per lineal foot of pipe joint per 24 hours. This method, however, was found too slow to keep the line tested as fast as finished, and to facilitate the work a special apparatus was made. A steam roller wagon, a low platform truck, was used to carry the apparatus, which consists of a five-horsepower Nash gasoline engine, resting on the platform at the rear of the truck and direct-connected to a four-cylinder force pump. Three of these cylinders are two inches and one is a half-inch in diameter. The pump rests on top of the tank from which the water is pumped and measured, a by-pass being so arranged that the quantity forced into the pipes may be very small. A gauge graduated to register from 10 to 600 pounds indicates the pressure. The connection with the hydrant is made by a half-inch flexible copper pipe, which is said to remain flexible at all temperatures, cannot kink or crush, and therefore is always capable of delivering its full capacity.

The practice is to test pipes between valves. Results are frequently confused by the presence of air in the pipes. The air collects at the high point, and when pressure is applied causes the needle on the pressure gauge to jump. Unexpected results are sometimes found. In one instance the pressure was raised to the 400 pounds required and when pumping stopped rapidly fell, apparently indicating a leak. Ten times this process was repeated, and the eleventh time the pressure held and the section passed the test. Little trouble has been experienced from the failure of straight pipes to stand the tests. Leaks, when they occur, have almost always been found in the joints of the specials, more particularly the curved pipe. These latter are known to be weak points in the system, and for that reason are reinforced with rods bolted to a collar on the straight pipe and passing over lugs on the curved pipe. Once only was a leak found to be due to a cracked straight pipe.



SETTING A FIRE HYDRANT, SHOWING LIGHT DERRICK

The pumping plant at each of the two stations includes five electrically driven pumps. The contract for these, completely installed, was let to the Allis-Chalmers Company for \$119,635.50 for each station. The fire-hydrants, of which 1,050 are four-nozzle post-hydrants and 40 are two-nozzle fire-boat connection hydrants, are furnished by the A. P. Smith Manufacturing Company; contract price \$104,640. The valves are furnished by the Kennedy Valve Manufacturing Company; and Cornell valve boxes are used. The Henry J. McCoy Company furnishes the manhole covers, lead and other materials. The pipe is obtained from several foundries.

At the present time, about one-third of the work is done, and plans are being made for finishing the contract during the coming season. With the large supply of pipe at present being accumulated and the deficiency in specials corrected, it seems probable that the well-organized gangs, now familiar with their work, will be able to accomplish the feat. As it is, all records for pipe laying, in New York City at least, have been broken, and it seems certain that even these records will be surpassed. With the completion of this work, New York will be provided with a system unequalled in extent; in height of pressure (250 pounds at each hydrant); and in the value of property protected. Philadelphia has a system in which the pressure is equally high; the principal points of difference being that in Philadelphia flanged pipes and expansion joints are used, instead of lead joints with the double groove, and in Philadelphia the power stations are provided with gas engines instead of electrically-driven pumps. Other cities, Buffalo, Boston, Chicago, Cleveland, Detroit, Milwaukee, Newark and Providence, have efficient high-pressure fire systems, but they do not compare in extent and power to the New York system.

#### Cost of Smoke to Chicago

A MERCHANT doing business in State street, Chicago, Mr. Charles A. Stephens, asserted recently that in his establishment alone prices of goods were reduced \$200,000 last year because of being soiled, most of which soiling was due to smoke in the atmosphere; and that he believed the total loss to all merchants on that street during the year must have approximated \$2,000,000. "In fact," said he, "I believe the damage caused in our city by this black smoke amounts to more every year than the total taxes paid by the city. You can take it from the simple apartment that pays from \$8 to \$12 tax, to the fine residence that pays from \$300 to \$400 in taxes, and I can prove to you that the black smoke in the atmosphere costs them more each year than they pay in taxes, and when you consider that there is over \$40,000,000 annually paid in taxes, it makes it a subject worthy of consideration." Chicago has anti-smoke ordinances, but finds the same difficulty experienced by other cities in enforcing them. This is one of the matters considered at the initial meeting of the Smoke Inspectors several months ago and the prospects are bright for securing legislation which will prove effective in many cities.

## GARBAGE PROBLEM AT READING

Experience of This City with Incinerating and Reduction Plants—Hopes to Secure Collection and Disposal Without Cost

THE disposal of garbage by municipalities is engaging more than ordinary attention at this time, and all of them appear to have more or less difficulty in adopting a satisfactory and economical method. The experience of Reading, Pa., while possibly more varied than that of many cities, probably has its counterpart in a considerable number. In his recent annual message Mayor Gerber suggested to City Councils that, in view of the expiration of the present contract a year hence, it might be well to look into the question thoroughly and advertise for bids early, so as to afford prospective bidders ample time. Mayor Gerber believes that the treatment of garbage and other refuse can be made sufficiently profitable to a contractor to warrant its collection by him without cost to the city. The present contract calls for the collection of garbage alone, but Councils are considering the question of collecting ashes also. The work is now being done under the supervision of Elmer H. Beard, City Engineer, who furnishes the following history of the garbage contracts:

In 1897, after the passage of a garbage ordinance, which was signed by the Mayor, Councils, through the Garbage Committee and the City Engineer, advertised for proposals for the construction of a garbage crematory with a capacity of 80 tons per 24 hours.

Among the several propositions received that for a Miles N. Davis (incinerating) plant, for the price of \$9,850, seemed most favorable, and a contract was entered into with Mr. Davis, who was a resident of Lancaster, for the construction of a plant of the above capacity.

Immediately after the completion of this plant the city entered into a contract with Messrs. Fehr & O'Rourke for the collection of garbage and its destruction by incineration, for which the city was to pay \$650 per month; but the plant was found not to have the capacity contracted for, and in fact would not do the work of incinerating at all, except when very dry material was received; and consequently the plant was abandoned, and for a time the city was at a loss what to do with its garbage.

In the fall of 1898 the city again advertised for the construction of another and more efficient plant, and also for the repairing or rebuilding of the Davis plant, so as to bring it up to a capacity of 80 tons. The General American Reduction Co. made a proposition to the city to put up a reduction plant and reduce the garbage and take care of the offal for 65 cents per ton, garbage to be delivered at their plant; they also proposed for \$3,250 to rebuild the old Davis plant so that it could be used during the building of the American Reduction Co.'s plant. After the rebuilding of the old plant the contract was awarded to Fehr & O'Rourke to collect the garbage and deliver it to the American Reduction Co., 1½ miles from the city, for the sum of \$1.35 per ton.

This reduction plant was operated apparently with satisfaction from the time of its completion, May 15, 1899, until June, 1900, when the manager of the American Reduction Co., after having made several complaints to the city, closed down the plant, basing this action on the claim that not enough garbage was being delivered to enable them to operate with profit, and that their contract called for a greater tonnage. From that period on until May or June, 1903, the garbage was buried by the city of Reading at the disposal plant, and afterwards at Cleaver's Phosphate Works, west of Reading, at a cost of \$3 per ton. Meantime in June, 1902, the city again advertised for proposals for disposing of its garbage, and awarded a contract to the Reading Sanitary Reduction Co. to collect and dispose of the garbage for a period of five years, for \$2.24 per ton. This plant is now in operation, with apparent success, and there have been very few complaints of improper collection.

## DULUTH'S GAS AND WATER REPORT

Receipts and Expenditures During 1906—One of the Seven Municipal Gas Plants in the United States—  
Low Water and Gas Rates

WE have once or twice referred to the habit most cities have fallen into of delaying the publication of their annual reports until months after the close of the fiscal year; and it gives us greater pleasure on this account to announce the receipt of the eighth annual report of the Water and Light Department of Duluth, Minn., but five weeks after the close of the year reported upon. We are also glad to note that the report gives clearly and concisely the information it should give, but is not lumbered up with unnecessary minutiae, such as the itemizing of each receipt and expenditure.

This department operates the municipal waterworks and gas plant, and its finances are kept entirely separate from those of all other city departments. Also the waterworks accounts are, as far as possible, separated from those connected with the gas plant. For the year 1906 the total income from both exceeded total expenditures for operation, maintenance and interest by \$47,572.97; \$40,768.52 of this being from the waterworks and \$6,804.45 from the gas plant. Of this amount \$40,629.53 was invested in extensions of the systems.

Somewhat more in detail, there was spent for pumping water, \$17,910.42; for water service, \$31,331.58; for interest on proportional part of bonds, \$103,103.56; a total of \$152,345.56. It is estimated that the taxes which would have been paid by a private company would be about \$13,000. The cost of the plant has been \$2,328,587.37 (about half of which was paid in 5 per cent. bonds, and half in 4 per cent.). If depreciation be placed at 2 per cent. it would amount to about \$46,572; giving a total of \$211,917.56. The earnings of the water plant, including \$38,693.68 hydrant rental, were \$193,114.08.



In the report rendered by Manager L. N. Case no allowance is made for depreciation, in explanation of which he says: "I am told I should insert in this statement a goodly sum for depreciation, but I think it would be nearer the truth if I should add to the profits another half million, because that is what could be obtained for the plants should the city desire to sell." It should also be stated that reductions made in water rates from those in force under private ownership have aggregated \$517,911.24; \$80,338.88 of which is balanced by appropriations from the tax levy to be used "exclusively in the reduction of water rates." Of this reduction \$134,108.79 was made in 1906.

The cost of the gas plant is given as \$615,632.04. Operation, maintenance and interest in 1906 amounted to \$109,538.30, of which \$61,191.52 was the cost of gas in the holder; \$21,244.69 was expended in services, and \$27,102.09 paid in interest. Lost taxes would have been about \$3,574; and depreciation at 3 per cent., \$18,469; a total of \$131,581.30. The total receipts were \$116,342.75. Comparison made between the 1906 rates and those in force under private ownership show a saving to consumers last year of \$114,159.28.

The water rates, both meter and flat, are now just one-half what they were under private ownership. Gas in 1906 was sold at 75 cents for light and 50 cents for heat and gas engines; whereas in 1898, under private ownership, \$1.90 was charged for light and \$1 fuel.

The cost of manufacturing gas has decreased from 49.68 cents in 1899 to 40.52 cents in 1906; the cost of service from 33.64 cents in 1899 to 14.07 cents in 1906; and the interest account from 69.68 cents in 1899 to 17.95 cents in 1906; all per 1,000 feet. The decrease of the two last items is largely accounted for by the increase in amount of gas sold from 25,309,963 feet to 151,004,300 feet.

### SEWER VENTILATION AND SLUDGE.

COMPLAINTS of odors from the sewers in Willesden, England, have grown less each year, according to Mr. O. Claude Robson, district engineer. In connection with this he states, in his annual report, that "this improved condition of affairs is largely due to the extension of the system of ventilation by upcast shafts, and the opportunity thus afforded for the closing of a large number of the open grids level with the surface of roadways. For some time these upcast shafts were confined to pipes attached to buildings, by permission of the owner and occupier, but so much difficulty has been encountered in obtaining this sanction that of recent years a separate standard shaft has been adopted. These shafts are fixed upon the pathway as a rule, are 30 feet in height and 6 inches to 9 inches in diameter. When possible they have been adapted to carry the wires in connection with the council's private telephone system, and have acted admirably in removing the gases generated in the sewers well above the olfactory nerves of the public. At the present time 294 upcast shafts are fixed in various posi-

tions in the district, certain sections of the district being complete in this system of ventilation to its sewers. With the method, as now adopted for some years past, of allowing a certain number of shafts to be erected each year, an excessive capital outlay has been avoided, and the points of complaint immediately dealt with. The greater length of sewers are now ventilated upon this system, and in a very short period I hope to report that the entire drainage area has been provided with these shafts and the old open grids permanently dispensed with. All new sewers constructed upon private estates should be provided with these shafts in the first instance by the owners, in lieu of the ventilating chamber and grating now attached to the manholes. The initial cost to the owners would not be more, public expenditure in the future might be avoided, and the position of the shaft more easily determined than would be the case when houses are erected. I would suggest that this matter should receive the consideration of the council, with a view to the rules and regulations as to construction of new sewers being amended accordingly. Certain ventilating lamps have also been fixed upon sewers at special points in the district for experimental purposes, the cost of the upkeep being £9 1s. 6d. per lamp per annum, the gas being supplied by the gas company. In one case damage has ensued by reason of explosive gas, presumably proceeding from a leakage of petrol into the sewers becoming ignited by the flame of the lamp. This matter is now under investigation, but I do not propose to extend this system of ventilation pending inquiries in this matter."

The solids of the sewage delivered at the works have been precipitated in a chemical plant by use of lime and aluminoferric; and although the precipitation is far from complete, more than 44,500 tons of wet sludge have been arrested in the tanks during the year, which have been pressed into 6,400 tons of cakes. "The difficulty of getting rid of 122 tons of this refuse weekly has been no slight anxiety for some time past, and the huge deposit now at the works, consisting of about 43,000 yards, has reached such a size that it has been deemed wise to cease depositing any further quantity in the locality." The pressed sludge is now being carted away at a cost of more than \$63 a week. Renewed efforts to have the farmers nearby take it has met with no success.

### Permission for Calumet Diversion Denied

THE Chief of Engineers, U. S. Army, has decided adversely upon the application of the Sanitary Board of Chicago for a permit to reverse the flow of the Calumet river, thus withdrawing water from Lake Michigan. The Judge Advocate General of the Department had previously decided that it was within the power of the Secretary of War and Chief of Engineers to issue a permit in their discretion. Therefore, Gen. Mackenzie, the Chief of Engineers, in the exercise of this discretion, decided to refuse the application, on the ground that the projected works would injure the navigation of the Great Lakes. His decision is final, as even the Secretary of War is without power to reverse it.

## NEWS OF THE MUNICIPALITIES

**Divers Subjects of General Interest and Their Treatment by City Councils and Officials—Streets, Waterworks, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance**

### Roads and Pavements

**BALLARD, WASH.**—Ballard property owners are circulating petitions for asphalt pavements and concrete sidewalks, as the need of the improvements is recognized as immediate. The object of getting them under way at once is to prevent the possibility of any delay should Ballard vote, in the April election, to join Seattle.

**BROOKLYN, N. Y.**—Condemnation of street pavements by the Grand Jury will be the means of increasing the appropriation for improving Brooklyn streets by \$1,900,000, as urged by the civic associations. While this addition will bring the fund up to \$2,225,000, it is not one-quarter of the amount that would be required to put Brooklyn streets in good order. The following figures are given by Consulting Engineer R. W. Creuzbaur to show that the amounts allowed for maintenance in 1906 were insufficient: Manhattan received \$1,250,000 for 422 miles of pavement, the Bronx \$420,000 for 195 miles, and Brooklyn \$1,250,000 for 615 miles. Moreover, the average age of pavements on which guarantees have expired is: Manhattan, 12 years; the Bronx, 10 years, and Brooklyn, 17 years. Brooklyn, too, has 40 miles of old Belgian block pavement, as compared with 14 in Manhattan and 9 in Queens and none in the Bronx. Repaving over this Belgian pavement would cost, according to figures of George W. Tillson, the Engineer of Highways, \$1,000,000, while replacement of old granite streets and asphalt streets, which have been patched and repatched on poor foundations, would require an expenditure of about \$6,750,000 more.

**CARTHAGE, Mo.**—Paving plans are progressing; a general paving ordinance has been introduced, the provisions of which will apply to all later ordinances for the improvement of particular streets. The general ordinance requires the use of bricks which have been burned by coal, excluding gas-burned bricks. The paving of the space between the rails of the street car tracks and for 12 inches outside of the rails is provided for in an ordinance which, if accepted by the street railway, will be a supplementary agreement to their franchise. In the same ordinance the rate of taxation for occupancy is fixed at \$500, to be increased \$100 for each 3,000 of population as it is added to the city.

**DETROIT, MICH.**—A resolution drawn by Alderman Rose has been adopted to compel all property owners to make connections from the water main in the street to a point inside the curb line in front of their respective properties prior to the time the street is to be paved. In case of failure to make the connection on thirty days notice, the Water Board is authorized to make the connection and charge it to the property owner.

**SALISBURY, N. C.**—The Merchants' Association is anxious to have the roads in this vicinity improved, and for that purpose is supporting Representative Walter Murphy's road bill. The Association also favors the construction of a large steel bridge across the South Yadkin River, eight miles from Salisbury.

**SAVANNAH, GA.**—The City of Savannah is contemplating owning and operating a plant for the repair of asphalt pavements. City Engineer J. W. Howard is collecting from cities operating repair plants as well as from manu-

facturers of machinery, information to aid in the selection of suitable appliances.

**SEATTLE, WASH.**—The total expenses of the Street Department, according to the report of Street Superintendent Walters, were \$134,997 last year, as compared with \$118,603 for the previous year. The increase in expense was due to greater mileage of improvements. The city prisoners are worked under the direction of the Street Superintendent, in conjunction with the Police Department. The report states that eighteen prisoners cleaned the walls of the City Hall, 470 cleaned brick at the city yards, 194 assisted in cutting the bank at Third avenue, 103 cut a bank at Virginia street, 16 built a bicycle path from Madison Park to Madrona Park, and many others of the 3,000 assisted in street work.

**TOLEDO, O.**—Plans for the new Cherry Street bridge have been worked out by Frank C. Osborn, of the Osborn Engineering Company. It is stated that the bridge will be taken down and rebuilt in such a way as not to interrupt street traffic and without any temporary crossing. The old structure will be taken down the river and erected at Ash and Consaul streets. The new bridge will not cost over \$700,000, and will require more than two years to build. It will be built with regard to artistic appearance, as it is said it will be one of the finest in the world.

**WILMINGTON, N. C.**—A comprehensive plan of permanent street improvements was adopted at a conference of the Board of Aldermen and the Board of Audit and Finance. The proposition to issue \$400,000 of bonds was carried, with the understanding that the whole cost of the improvements should be paid by the bond issue. A Street Commission of five members to have charge of the work will be selected by the two boards, one member from each ward. A provision was included in the bill for a new assessment each year of property where improvements have been made, the expectation being that increased assessments will take care of the bonds.

### Sewage and Sanitation

**BRIDGEPORT, CONN.**—A popular lecture on Sewage Disposal was delivered by Dr. Leonard P. Kinnicutt, of the Worcester Polytechnic Institute, before the University Club. The lecturer grouped the various methods under three general classes. 1. Percolation on sandy soil—requiring about one acre of land for 700 population. 2. Contact Process—beds of broken stone through which the sewage is passed—requiring one acre for each 3,000 of population. 3. Sprinkling System—an aerating process—requiring one acre of land for 10,000 inhabitants.

**JACKSONVILLE, FLA.**—The services of a consulting sanitary engineer are needed by the State Board of Health, according to the report of Health Officer Dr. Joseph J. Porter. A desire for better sanitary conditions on the part of many towns in the State has resulted in many inquiries for assistance from the State Board. These questions are of a nature requiring the consideration of an engineer and geologist. It is recommended that a sanitary expert be engaged, who can be sent to municipalities making inquiries. The question as to whether drainage into sink-holes will injure the water supply at places comparatively remote is a matter pressing for solution.



LEBANON, PA.—In pursuance of a resolution of Council calling for an opinion on the right of the city to construct a sewer system, City Solicitor E. D. Siegrist says that the city may construct works, under the law of 1903, applying to cities of the third class, which provides that the cost of such work may be assessed in three different ways: (1) According to the foot-front rule; (2) according to the assessed valuation of the property; (3) according to benefits. Main sewers, beyond that part used for local purposes, may be paid for out of general revenues or out of special funds used for the purpose. No permanent debt is necessary, but a tax may be levied, payable in three annual installments. With a borrowing capacity of half a million dollars, the city is in good financial condition for undertaking the work.

NEW YORK, N. Y.—Protesting against the construction of the Bronx River Valley sewer, the Merchants' Association has petitioned the United States Government to stop the dumping of raw sewage into the New York harbor, on the ground that it will ruin it for shipping purposes. The sewer especially objected to is designed to drain an area containing a population of about 400,000, which is rapidly increasing. Attention was also called to the proposed Passaic Valley sewer, which will drain an area containing 500,000 population.

POTTSTOWN, PA.—The Sewer Committee of the Town Council has recommended that a sewage system be built in accordance with the instructions of the State Board of Health, issued for the purpose of accomplishing the purification of the Schuylkill river. A separate system will be built; house drainage at the expense of abutting property owners and storm drainage at the expense of the town at large. A disposal plant, of course, is a necessary part of the plan.

SCHENECTADY, N. Y.—The sanitary sewer system will be extended, in accordance with the requirements of the State Board of Health. City Engineer Lewis C. Sebring has prepared plans for the outlying districts, which, with the sewers now in use, will provide for a population of 125,000. Work will be started in the spring on three large trunk sewers, and a disposal plant. The old and the new systems will discharge into an outfall sewer skirting the Mohawk river; from there it will be pumped across the river, where the disposal plant will be located.

SCRANTON, PA.—A permanent staff of sanitary officers is the most important recommendation of Director Wormser, in the annual report of the Department of Public Safety. It is proposed that the two mounted policemen be at once made sanitary officers, and that two more mounted men be appointed for that purpose. Each man should be assigned to patrol a definite section of the city. They will be expected to act on their own initiative, and for that purpose will be given power to prosecute offenders. The best men on the force are to be selected for this duty.

YORK, PA.—The necessity of completing the sewer system already begun is being urged by Dr. J. H. Bennett, registrar of vital statistics, as well as by others. During the past year more than a thousand complaints have been made by individuals who live in the neighborhood of unsanitary cesspools. Moreover, the use of storm sewers by persons who, without permission, have made house connections, is likely to be prohibited by State authorities. As in any event Codorus creek could not take care of the sewage in dry weather without creating a nuisance, a disposal system seems the only solution. At the most the creeks could not carry away the sewage from a larger population than 15,000—one-third of the total amount—during the dry season without creating a nuisance.

## Waterworks

ATLANTA, GA.—The report of General Manager Park Woodward, showing the urgent needs of the waterworks, will be mailed to every registered voter in the city, in order that he may be informed as to the necessity for the proposed bond issue. Fear is expressed that it may be necessary this year to refuse to make any new connections, and to cut off all those outside the city limits. What is needed is: A new 36-inch main from the Chattahoochee river to the reservoir; a new coagulating basin and new clear-water basin; new filters; a new pump, with boilers and equipment; pipe connection for the new reservoir; and new mains within the city.

BURLINGTON, VT.—The installation of a mechanical filtration plant for filtering the lake water was decided upon by a vote of 4 to 3 in the special aldermanic committee, to whom the matter was referred. Slow sand filtration had been recommended in reports of Whipple and Hazen, of New York, and M. N. Baker, also of New York, consulting engineers. The City Engineer, F. O. Sinclair, and Prof. Votey, were with the minority. The plan adopted is to build a mechanical plant on the water front.

LYNCHBURG, VA.—The dam across the Pedlar river, 22 miles from the city, built for the waterworks, has been completed. The dam is nearly 300 feet long, and is 75 feet high; for its construction 4,500 cubic yards of rock and 2,500 cubic yards of dirt had to be excavated; in the structure there were used 2,500 cubic yards of concrete, 500 cubic yards of cut stone, and 12 tons of steel for reinforcement. The dam, which cost \$103,000, was designed by James H. Fuertes, of New York. To bring the water to the city, about 8,000,000 gallons per day maximum, 99,000 feet of wood stave pipe, 7,000 feet of steel pipe and 4,000 feet of cast-iron pipe are used.

LYNN, MASS.—At a recent meeting, held under the auspices of the Lynn Board of Trade, the best methods of securing an increased water supply were discussed. The city is now receiving 5,000,000 gallons of water per day from four supplies, the principal one of which is the Saugus river. If the use of the Saugus river is to be continued filtration will be necessary. The city has rights in the Ipswich river, a less polluted supply. The cost of a filtering plant for the Saugus would be about \$450,000, not much less than the cost of taking the supply from the Ipswich river. To go into the metropolitan system would cost \$80,000 annually, besides the cost of laying pipes. In reply to an inquiry, in the course of a debate, the chief engineer of the State Board of Health, X. H. Goodnough, stated that one of the difficulties about the watersheds is that a large part of them are in the Lynn woods, where so many people go in the summer, and he recommended that access to the portions near the reservoir be restricted.

PERTH AMBOY, N. J.—One million gallons of water daily wasted is the estimate given by Superintendent Burns as the amount of water wasted during the recent cold days. A simple way of verifying this waste, without accepting waterworks figures, is to go to the mouth of the sewers, where streams of water may be seen pouring out just as after a heavy rain.

PUEBLO, COL.—A report of the earnings and operations of Public Waterworks District No. 2 for six months has been made by General Superintendent E. J. Willis. The earnings were \$71,470. The maintenance, operating and fixed charges, including \$26,685 interest, were \$46,836. The resources are put at \$1,087,791. The total bonded indebtedness, less sinking fund, is \$987,385. There has been invested in the plant during this period \$36,135.

TRENTON, N. J.—An act has been introduced in the

Legislature to establish a State Water Supply Commission. The design of the bill is to prevent any municipal or other corporation from acquiring lands for the purposes of water supply without first submitting their plans to the Commission for approval. After due hearing the Commission shall decide whether the plans proposed are justified by public necessity and equitable to other municipalities and inhabitants of the State. The Commission is to have the authority to subpoena witnesses and to examine books and papers in the course of their inquiries. Annual reports are required from all municipalities or companies which divert water for water supply purposes. Every corporation hereafter so diverting water, in excess of the amounts now taken, shall pay the State for the excess, and every corporation diverting water for the first time shall pay for all water consumed in excess of an allowance of 100 gallons per day per inhabitant in the city supplied. The rate of payment shall be between \$1 and \$20 per million gallons taken.

WILMINGTON, DEL.—Water power from the Wilmington reservoir's fall can be utilized to supply 140 arc lights at an annual saving of \$7,000, Chief Engineer Leisen, of the Water Department, has reported.

WOOSTER, O.—The city has a hard proposition in the matter of improving its municipal waterworks. In a recent election the question of issuing \$50,000 bonds for improvements was voted down. An ordinance has been introduced by J. J. Keisler calling for a vote on an issue of \$20,000—the largest amount that can be issued in one year, owing to the State limitation of 1 per cent. of the total valuation.

#### Street Lighting

ALTON, ILL.—The Alton Gas and Electric Company has refused to pay a 2 per cent. tax on the gross receipts of its gas plant in Alton, claiming that the city ordinance requiring such a tax is not in effect. When a franchise was granted seven years ago a clause was inserted by the City Council imposing a tax of 2 per cent. on the gross receipts of the company. Recently the City Council began an investigation as to why the tax was not being paid, and found that the franchise granted then was not formally accepted by the grantee, but that work of laying gas mains was done under its provisions, and the city officials claimed that the acceptance was actual, if not formal.

BOSTON, MASS.—A large portion of the down-town section of the city was in darkness for several hours, because of accidents to the electric cables of the Edison Illuminating Company. At Summer and L streets, South Boston, a fire occurred in a conduit, which did \$2,000 damage. An attempt was made to connect the cables with the plant at Head place, and when the work was going on there another fire occurred. To add to the troubles, a railing on the Boylston street railroad bridge became charged with electricity. Policemen with lanterns were stationed on the bridge to warn passengers of the danger.

RICHMOND, IND.—City Controller Webster Parry, in his annual report, gives figures regarding the municipal lighting plant. During the year improvements which will increase the capacity of the plant two-thirds have been authorized and are very near completion. The growth of demand for current is shown by the fact that the number of consumers has increased from 1,323 to 1,731 within a year. The plant is indebted to the city to the amount of \$200,282, of which, on January 1, 1906, \$144,000 was covered by bonds and \$56,282 by cash advances. Since that time the city has paid out for the plant and for betterments \$53,670, and has received from the plant

\$63,188. Regarding operating accounts, the total receipts as stated were \$63,188, and the operating expenses \$33,587, leaving a gross profit of \$29,601, an amount which appears to be sufficient to cover interest on bonds and cash loans, and also depreciation, sinking fund and lost taxes. The plant furnishes current at 7½ cents per kilowatt. For street lighting 294 arc lights are operated.

WEBB CITY, Mo.—Mayor Moore and the members of the Light Committee of the Council spent a morning recently in selecting locations for the twelve arches of incandescent lights which have been ordered. The arches will ascend from edge of the sidewalk on each side of the street, the curve beginning at about two-thirds of the elevation. Webb City occupies high land, and is well lighted with arc lamps. It is stated that the illuminations of the city are plainly visible twenty miles away.

#### Fire and Police

HUBBARD, O.—The recent purchase of fire-fighting apparatus for the village has led the City Council to provide three 200-barrel cisterns, to be located centrally. The new equipment which arrived recently consists of a new fire engine, hook and ladder truck and hose truck. The cisterns will be built with four-inch brick walls, and will cost \$100 each.

ROCHESTER, N. Y.—Chief Little's report for the year 1906 to Commissioner Gilman, of the Department of Public Service, contains the following information: The total number of fire alarms during the year was 724, of which 27 were false; of the balance 358 were received from boxes; 289 were given by telephone, and 77 were verbal. The number of fires originating in brick or stone buildings was 181, in frame buildings 287, not in any building 170.

TROY, N. Y.—A resolution requesting the Committee on Public Safety to confer with city officials in regard to the proposition of changing Troy's Volunteer Fire Department to a paid system, was introduced by Alderman Millard. This action was due to a recent fire at a manufacturing plant when the commerce of the whole city was interrupted. A fire requiring uninterrupted service for many hours, or even days, as in the case referred to, develops the weakness of the volunteer system.

YOUNGSTOWN, O.—The annual report of Chief McDowell has been submitted to Mayor Baldwin. At the present time, the Department consists of a Chief, Captain, Lieutenant, five Sergeants, two detectives, forty-five patrolmen and nine others. The Chief considers it remarkable that, situated as it is, half way between Cleveland and Pittsburg, there are so few serious crimes. There has not been a case of safe-blowing in the town for six years, while pocket-picking and burglary are rare. In the selection of policemen, great care is advised, and the merit system in use is commended.

#### Government and Finance

ARGENTINE, KAN.—A plan for reducing the expenses of the city \$260 a month has been formed by Mayor Hadley Rossette. The idea is to reduce the number of officers and double their duties. The Chief of the Fire Department, the Mayor asserts, can act as City Clerk. The Street Commissioner can act as Chief of Police, and the two constables can do police duties. The City Attorney may be dispensed with entirely.

BANGOR, ME.—That perpetual franchise rights in certain streets may be legally given to a railway company is the conclusion of five of the eight members of the civic committee appointed to consider the question. In return for the proposed franchise the railroad company offer to replace two wooden spans of the old Bangor-Brewer toll



bridge with steel spans, which will cost \$75,000 or \$100,000.

HAMILTON, O.—The report on audit of the records of the Gas, Electric and Water Departments of the Board of Public Service has been made. The records were found to be in an inexcusably faulty condition, notably in the matter of failure to keep a controlling account. The receipts of the Gas Department for the year 1906 amounted to \$59,584, of the Electric Department \$45,097, and of the Water Department \$55,221. In general, the books were kept in such a condition that it was almost impossible to make out a list of delinquents. The Water Department paid \$6,000 to the sinking fund, and still had over \$2,000 more on hand than the year before. The audit company made the following suggestions:

The ledgers from the three departments should be kept by three different clerks.

A general ledger should be kept by one competent party.

The collector should give bond.

There should be but one cashier.

The accounts should be kept up-to-date.

No changes should be made in ledger after an amount is entered.

Where special rates are made charges should be made according to the rate or be the same as the cash to be collected.

An alphabetical list of delinquents should be kept.

Follow up delinquents persistently.

Introduce an alphabetical card index in the office outfit.

Save time by adopting some addressing machine to address envelopes, when sending out notices.

NEW ALBANY, IND.—A report of the auditing company, which has been at work two months, shows that the city has a floating debt of \$50,000, in addition to its bonded debt of \$300,000. The report states that the system of book-keeping was antiquated and permitted of negligence and carelessness. The recommendation was made that the city's expenses should be kept within its income, and that the tax levy be raised for this purpose, if necessary. It urged that steps be taken to collect delinquent taxes, and gave instances where taxes had not been collected on property since the Civil War. The cost of this investigation has amounted to \$2,000.

NEWBURG, N. Y.—Among the proposed changes in the city charter, which are the result of two months' work of the Corporation Counsel and others, are: Restoration of the functions of the Board of Works to the City Council; making violations of Board of Health regulations a misdemeanor; relieving the city of liability for damages for injury unless notice has first been served upon the city of the existence of a dangerous condition; abolishing the office of City Assessors appointed by the Mayor, and providing three elective Assessors; changing term of office of Corporation Counsel and City Engineer from one to two years; making water rates subject to review of City Council; abolishing the Board of Review of Taxes and Assessments; and changing the Common Council to City Council.

PHILADELPHIA, PA.—Real estate experts claim that a valuation of not less than \$100,000,000 could be put on the properties of the Pennsylvania, the Reading and the Baltimore & Ohio Railroads. There was actually paid to the Receiver of Taxes for 1906 by the Pennsylvania Railroad \$250,000, by the Reading Railroad \$200,000, and by the Baltimore & Ohio Railroad \$50,000. Under the law a roadbed is exempt from taxation, but the definition of a roadbed is not clear in all cases. As an illustration of rates, the Broad Street Station, extending 300 by 1,500 feet, is assessed for \$5,500,000.

#### Refuse Collection and Disposal

GRAND FORKS, N. D.—According to the new garbage ordinance, which has been signed by the Mayor, the city has been divided into two districts, to facilitate collection. Contract for collection is to be made every year

in March. Kitchen refuse is to be collected from residences every two weeks, boarding-houses every week, and hotels of 20 rooms every two days. Dead animals are to be removed as soon as possible. Old cans, ashes and bottles may be removed by anyone, but if allowed to accumulate shall be removed by the garbage contractor. Kitchen garbage is to be kept in 20-gallon receptacles. A charge will be made for removal of all classes of waste.

KNOXVILLE, TENN.—An ordinance compelling citizens to burn all combustible trash or garbage in their own stoves or furnaces has been passed by the City Council. The principal object is to dispose of paper without the necessity of a long haul, as has been customary. Besides this, the papers blowing about in the vicinity of the dumps have long been a source of complaints.

LANCASTER, PA.—A special committee from Altoona has been investigating the garbage crematory built by the Davis Company, a local firm. The plant cost the city \$7,000. It is operated by a contractor, who for \$11,000 a year keeps the plant in operation and repair, and collects and hauls the garbage, which consists mostly of kitchen and store refuse. The plant is located within the city limits, and does not annoy people who live nearby. The committee were informed that the cost of fuel per day was only about 25 cents. About 20 tons of garbage are consumed daily. The committee, which consists of President James P. Bartley, James White and Secretary Samuel B. Trees, of the Board of Health, and George W. Kuebler, President of the Board of Public Works, will continue investigations in other cities.

MASSILLON, O.—The Board of Public Service is preparing to give Massillon cleaner streets. The Board has recently received a new Justin sweeper and purchased a new team of horses, a dump wagon, a cart and necessary small tools. With the two machines now owned by the city it is figured that all the paved streets in the city can be cleaned in three nights.

NEW ORLEANS, LA.—The Cleaner New Orleans Committee of the Progressive Union has decided to prepare a pamphlet to advise citizens of the practices which are required or forbidden by law. The pamphlet, besides containing information regarding the value of clean streets, will have a complete file of abridged city ordinances relating to the subject. Each ordinance will be marked with its original number. In the meantime the public is invited to send complaints about bad streets or debris unremoved directly to Mayor Behrman, who will transmit them to their proper department.

#### Parks and City Beauty

CORNING, N. Y.—In developing the plans for park improvements, Landscape Architect Harold A. Caparn, of New York, has taken into consideration the fact that considerable city property belonging to the waterworks adjoining the park site proper can also be improved and beautified at small expense. The location of the waterworks building recently constructed will be given special consideration, and the main park entrance on the waterworks property will be at the foot of Erie Avenue, which conforms nearly to the axis of the site.

HARRISBURG, PA.—President Disbrow, of the Park Commission, has submitted the annual reports to the Councils. The total attendance at the parks during the year was 678,000, which is nearly ten times the population of the city. For the coming year an appropriation of \$35,000 is asked—a charge of 50 cents per capita of the city's population. Attention is called to the fact that no citizen of Harrisburg, wherever he may live, must walk more than three-fourths of a mile to get to a park or recreation ground. The total area of parks is 476 acres, 401 acres additional have been chosen for an extension.

**HAVERHILL, MASS.**—To establish public school gardens in every city, village and country town in Massachusetts is the aim of the State School Superintendents' Association. This decision was unanimous at a recent meeting in this city.

**PASADENA, CAL.**—The Camelita Garden Association has been formed for the purpose of acquiring and developing a pleasure park which it binds itself to turn over to the city within ten years at cost and interest. Funds for the enterprise are provided by the issue of 25,000 shares of stock at \$10 a share—so that the movement may be wholly a popular one. By a vote of holders of two thirds of the stock the park may be turned over to the city at any time before the ten years have expired, if the city is willing to pay the expenses that have been incurred. Mr. C. H. Daggett is one of the leaders in the enterprise.

**PHILADELPHIA, PA.**—An "Art Jury" for Philadelphia, to pass upon objects of art for public places and upon designs for the city's buildings, bridges, etc., is provided for in a bill which Representative Dearden has introduced in the State Legislature. The jury is to consist of the Mayor and eight persons appointed by him, comprising a painter, a sculptor, an architect, a member of a Park Commission and four other persons not engaged in the practice of the profession of painting, sculpture or architecture, but members of an art corporation.

**TOLEDO, O.**—An anti-smoke campaign, with the object of improving real estate values in the lower end of the town, will be started in the spring by Inspector D. D. Wilson. Railroads, steamboats and manufactories are the chief offenders in that section, which not many years ago was a popular home section. President James Brown, of the Board of Review, has furnished specific information relative to homes and residences that have been practically ruined by smoke. Their owners have been obliged to place them on the market at a fraction of their original cost.

#### Rapid Transit

**CLEVELAND, O.**—The report of the first three months operation of the Municipal Traction Company of Cleveland, has been made. The company earned during November \$2,926; during December \$4,811, and during January \$7,703; other items brought the total for the three months up to \$17,271. The total operating expenses for this period was \$16,085, leaving a balance of \$1,186. The company did not begin to run cars to the Public Square until January 16. The earnings between January 16 and January 30 were \$5,381, and the operating expenses \$3,466.

**JERSEY CITY, N. J.**—Colonel Edwin W. Hine has persuaded the Street and Water Board to lay over for a while an ordinance which Mayor Mark M. Fagan sent to the Board with the request that it be passed, which ordinance repeals one passed in 1893, giving Consolidated Traction Company franchises to most of the streets in the city at that time unoccupied by trolley tracks. Mayor Fagan wants the city to be in a position to offer routes to a rival of the Public Service Corporation if he can secure the organization of a new trolley company, either as a private concern or under municipal ownership.

**NEW YORK, N. Y.**—The report of Chief Engineer Charles M. Jacobs shows that the tunnels of the Manhattan end of the Hudson Company's system now extend from the shaft near the foot of Christopher street nearly to the corner of Christopher street and Ninth avenue; that the two tubes from there to Hoboken are finished, except for the operating tracks; that the tubes from Jersey City to Cortlandt and Fulton streets have been bored about three-quarters of the way across, and that the work

on the tunnels for the Jersey connections of the under-river tubes is nearly half done. At the beginning of 1906 work on the project was being done from three shafts; boring is now being done from nineteen different points. In 1906 the number of men employed on the tunnels was increased from 1,350 to more than 5,000.

#### Miscellaneous

**BUFFALO, N. Y.**—In reply to inquiry as to what is being done to enforce the law as to fire-escapes, Corporation Counsel Desbecker states that altogether 100 cases were turned over to his office. Twenty-seven suits have been started to collect penalties for failure to obey the law. Sixty cases that were taken up have resulted in the owners making contracts to have their buildings equipped with escapes. Twenty-one other cases are being investigated, with a view to bringing suits.

**CHICAGO, ILL.**—Cheaper telephone rates for Chicago are promised as a result of a lease of the 30-year telephone franchise of the Illinois Tunnel Company. At the same time the announcement was made that Dr. Greene, Superintendent of the Telephone Department of the tunnel company, stated that the new company would be in a position to extend telephone service, heretofore confined to the loop district, to all other parts of the city. In order to carry out its agreement the new company must have 20,000 subscribers by July, 1908. The head of the new corporation is E. L. Barber, of Wausern.

**COLUMBUS, O.**—Some time ago Mayor Badger appointed a committee of citizens composed of A. W. Thurman, J. S. M. Goodloe and Colonel J. T. Holmes, to investigate the various city departments. It was discovered there were no funds with which to work, but the City Council came to his rescue by adopting a resolution supporting the Mayor's course and appropriating such miscellaneous funds as were available. In this manner it is expected that as much as \$5,000 can be used at once.

**HARTFORD, CONN.**—A resolution providing for presentation of a bill to the Legislature, to allow the city to establish and operate a municipal ice plant, has again been introduced by Alderman Koppleman. A conference will be held with the lower board, which is reported to be more favorably inclined to the measure than formerly.

**PITTSBURG, PA.**—That housing conditions in the crowded districts of Pittsburg are worse than have ever been found elsewhere, is the assertion of William H. Matthews, resident director of the Kingsley House, who has just completed a systematic investigation covering a period of several months. These conclusions are confirmed by Prof. Edward T. Devine, of New York, who accompanied Mr. Matthews on a tour of inspection. The failure of the city of Pittsburg to provide for the collection of garbage and rubbish contributes to the result. The failure of the officials to compel the vacation of houses that have been condemned is another cause which can be remedied only when a law is passed authorizing the destruction of condemned houses by the Fire Department or others, as is customary in New York and Chicago.

**WASHINGTON, D. C.**—A joint resolution, introduced by Representative Madden, of Illinois, requests the Bureau of Corporations of the Department of Commerce and Labor to collate information concerning the public utilities of the District of Columbia, and to transmit it to the Sixtieth Congress. The report will cover the whole financial conduct of the gas, telephone, and street railway business. Authority is given to engage expert accountants to examine the books of the corporations and to incur any expenses in order to make the investigation thorough. The resolution is a substitute for one introduced earlier in the session by Representative Morrell, of Pennsylvania.



## LEGAL NEWS

A Summary and Notes of Recent Decisions  
—Rulings of Municipal Interest—

## Icy Sidewalks

**MacMullen vs. Middletown.**—A victory for Corporation Counsel Wiggins has been won in the Court of Appeals in this case, which has been before the courts for two years, with decisions hitherto adverse to the city. In February, 1904, MacMullen slipped and fell on an icy sidewalk and brought suit for \$5,000 damages. The city charter provides that no action shall be maintained for damages to a person sustained in consequence of the existence of ice on a sidewalk unless written notice of the dangerous place has actually been given to the Common Council and there was a neglect to remove the ice within a reasonable time. The required notice was not given, and the plaintiff claimed that it was an unreasonable and unconstitutional provision. The decision of the court holds that the charter is constitutional. This is the case concerning which it was reported in our January 30th issue, that the Court of Appeals upheld the decision of the lower court.—Court of Appeals, Middletown, N. Y.

## Regulating Price of Gas

**Chicago vs. D. O. Mills.**—Mills is a stockholder of the People's Gas Company of Chicago and a resident of California. He brought suit in the Federal Court of Illinois asking for an injunction to prohibit the enforcement of the ordinance setting the price of gas at 75 cents per thousand feet. It appeared from the city's pleadings that since 1900, when the ordinance was enacted, the company had collected at the rate of \$1 per thousand, thus obtaining an aggregate of \$12,000,000 in excess of the total that would have been obtained under the rates of the ordinance. The principal question at issue was the lack of jurisdiction on the part of the Federal courts, and the city charged that the suit by Mills had been instituted in collusion with the gas company, the local citizenship of the company admittedly depriving the National courts of jurisdiction. The District Court failed to find evidence of such collusion, and on the merits of the case granted the injunction. The Supreme Court sustained that course by affirming the decision.—Illinois Supreme Court.

## Damage Due to Sewage

**Gorham vs. New Haven.**—Judge Roraback has returned a verdict of \$2,300 and costs in favor of the plaintiff in the action for \$10,000 damages. It was alleged that the drainage from the filter beds at Springside farm had injured the plaintiff's property, which adjoins.—Superior Court, New Haven, Conn.

## Saloon a Nuisance

**Sand Point vs. Doyle.**—Injunction against the maintenance of a saloon, in violation of an ordinance, with ingress to and egress from a bridge over which large numbers of women and children pass, is held to be maintainable on the ground that it creates a nuisance.—Idaho Court.

## Public Street

## City of Peoria vs. Central Nat. Bank.

A municipal corporation is estopped to claim as a public street, land which for sixty years has been occupied by private parties with substantial buildings and upon a portion of which such parties have paid taxes for all the years since the patents to the land were granted.—Illinois State Court.

## NEWS OF THE SOCIETIES

**Society of Municipal Engineers of the City of New York.**—At a meeting to be held on the evening of February 27 in the Engineering Society Building, 29 West Thirty-ninth street, a paper will be read by Mr. Dixon, Secretary of the Turner Construction Company, on "Construction Details of Reinforced Concrete Work."

**New England Water Works Association.**—The February monthly meeting was largely devoted to discussing water pipe. Mr. Wm. R. Conard of Burlington, N. J., read a paper entitled "Some Observations on Cast-Iron Pipe Specifications"; a discussion was held concerning universal joint pipe; and Mr. Wm. Lyman Underwood described "The Work of the Maine River-Drivers," with illustrations. Mr. Conard stated that his experience indicated that many cities of the New England and Central States had adopted the standard specifications of the society, but that in other parts of the country every waterworks superintendent was a law to himself in that respect. He also suggested that the regular hydraulic test be applied to specials, as well as to straight pipe; and that the pressure be continued for a specified time, longer than is now the practice. Considerable discussion followed. One manufacturer, Mr. Walter Wood, advised casting pipes several inches longer than desired, and cutting off the surplus at the spigot end, to avoid porous iron; the bead he considered unnecessary anyhow.

In the discussion of the universal joint pipe several instances of its use were referred to, a 12-inch line across the Passaic river, two or three miles at Little Falls, N. J., some at Atlantic City, etc.

**The Association of American Portland Cement Manufacturers** announces the conditions of a prize competition for designs of suburban dwellings. The designs are to be of two classes: Class A—Single or detached dwellings; Class B—Twin, or semi-detached dwellings. Each class will be divided into: (1) Three or four rooms, one or one and a half stories in height, cost not to exceed \$2,000; (2) five or six rooms, two stories in height, cost not to exceed \$3,000; (3) seven or eight rooms, two or two and a half stories in height, cost not to exceed \$4,500. There will be first, second and third prizes, ranging in amount from \$200 to \$400.

**New York State Association of County Engineers.**—At a recent meeting at Albany the following officers were elected from the counties indicated: President, C. H. Smith, Orange county; vice-president, C. A. Fowler, Dutchess; secretary-treasurer, F. E. Bogardus, Onondaga; executive committee, E. Diehl, Erie; C. H. Smith, Orange, and W. P. White, Oneida.

**International Association of Municipal Electricians.**—Secretary Foster, Corning,

N. Y., has issued a circular letter inviting suggestions as to the subjects for papers to be presented at the next convention at Norfolk, Va. He also calls attention to the question box, which will be opened for answer and discussion at the meeting. Members desiring information on points that have arisen in connection with their work are invited to send inquiries to Walter M. Petty, Borough Electrician, Rutherford, N. J.

## American Roadmakers' Association.

At least twenty States will be represented by active good roads advocates at the convention at Carnegie Music Hall, Pittsburg, Pa., March 12, 13 and 14, according to reports received by the local committee. Hotel accommodations have been secured for 3,000 delegates. Chairman William Flinn reported that Governor Stuart and the Mayors of Pittsburg, Allegheny and McKeesport had agreed to speak. Letters from President James H. McDonald, of the national association, were received, giving a list of prominent men who will be here. Among them are: Logan W. Page, Director of the Office of Public Roads of the United States Department of Agriculture; E. C. Hutchinson, State Highway Commissioner of New Jersey; Paul D. Sargent, State Highway Commissioner of Maine; William O. Hotchkiss, State Geologist of Wisconsin; Horatio S. Earle, State Highway Commissioner of Michigan; Francis A. Price, State Highway Commissioner of Delaware; P. St. Wilson, State Highway Commissioner of Virginia; A. N. Johnson, Highway Engineer of Illinois; W. W. Crosby, State Highway Commissioner of Maryland; Sam Huston, State Highway Commissioner of Ohio.

## Calendar of Meetings

February 27.

**Society of Municipal Engineers of the City of New York.**—Meeting at the Engineering Society Building, 29 W. Thirty-ninth street.

March 5-6.

**Southern Tier Good Roads Association.**—Convention, Corning, N. Y. O. M. Wixon, Secretary, Elmira, N. Y.

March 6.

**American Society of Civil Engineers.**—Regular semi-monthly meeting, 8:30 p. m., the Society House, 220 West Fifty-seventh street.

March 12-14.

**American Roadmakers' Association.**—Convention, Carnegie Music Hall, Pittsburg, Pa.

April 18-21.

**Southwestern Gas, Electric and Street Railway Association.**—Annual meeting, San Antonio, Tex.—Frank C. Duffey, Secretary, Beaumont, Tex.

May 28-30.

**American Society of Mechanical Engineers.**—Spring meeting, Indianapolis, Ind.—Calvin W. Rice, Secretary, 12 West Twenty-first street, New York.

June 1-4.

**American Anti-Tuberculosis League.**—Annual convention, Atlantic City, N. J.—Dr. George Brown, Atlanta, Ga., President; Dr. Edward Guion, 1408 Atlantic avenue, Atlantic City, N. J., Vice-President.

June 12.

**National Conference of Charities and Correction.**—Thirty-third Conference, Minneapolis, Minn.

June 18.

**International Association of Chiefs of Police.**—Annual convention, Auditorium, Jamestown Exposition Grounds.—Major Richard Sylvester, President, Washington, D. C.

June 20-22.

**The Playground Association of America.**—First Annual meeting, Chicago, Ill.—Dr. H. S. Curtis, Secretary.

August 6-8.

**American Association of Park Superintendents.**—Annual convention, Toronto, Ont.—F. L. Mulford, Secretary, Harrisburg, Pa.

August 20-22.

**The International Association of Municipal Electricians.**—Annual convention, Jamestown Exposition, Norfolk, Va.—F. P. Foster, Secretary, Corning, N. Y.

## THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Buildings, Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

### BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>Street Improvements</b>				
Manitoba.....	Winnipeg.....	February 28, noon.....	Supplying 3,000 to 5,000 tons asphalt for paving; also for constructing movable asphalt plant.....	H. N. Ruttan, City Engineer.
New York.....	Corning.....	February 28, noon.....	17,705 sq. yds. brick pavement with cement curbs and gutters.....	J. T. Hall, Clk. Bd. Pub. Wks.
Pennsylvania.....	North Braddock.....	February 28, 3 P.M.....	1,170 sq. yds. brick paving, grading, curb, etc.	C. A. Stewart, Borough Engineer.
Ohio.....	Ravenna.....	February 28.....	Constructing State highway.....	Sam Huston, Columbus, Com'r.
Utah.....	Salt Lake City.....	February 28.....	Building sidewalks, curbs, gutters, etc., in 1907.	Board of Public Works.
South Dakota.....	Aberdeen.....	February 28.....	Paving certain sts. with creosoted block.....	F. W. Raymond, City Auditor.
Ohio.....	St. Clairsville.....	March 1, noon.....	Pave vit. brick or block, curb, etc., Main St.....	John C. Nichols, Village Clerk.
Oregon.....	Corvallis.....	March 1.....	Improving seven streets.....	Street Committee, Council.
Iowa.....	Mt. Vernon.....	March 1.....	Road work in township.....	F. A. Henry, Clerk.
New York.....	Plattsburg.....	March 1.....	Constructing 3,513 to 5,038 sq. yds. asphalt block; 100 ft. concrete curb, and 1030 to 2,016 ft. cut stone curb, Dock and Clinton Streets.....	R. E. Hyde, Mayor.
Ohio.....	Cleveland.....	March 2, 11 A.M.....	Grading, draining and paving Kingsman R'd.	A. B. Lea, County Engineer.
Ohio.....	Youngstown.....	March 2.....	Paving three streets.....	G. T. Prosser, City Clerk.
Iowa.....	Palo Alto, Newton P. O.	March 3.....	Road work for ensuing year.....	Walter H. Boyd, Clk. Bd. Trustees.
Ohio.....	Youngstown.....	March 4, 10 A.M.....	Grading hills, Kyles Corners and Flint Hill.....	Will B. Jones, Co. Auditor.
Ohio.....	Port Clinton.....	March 4, noon.....	Paving Adams St.; various materials.....	J. J. Huber, Village Clerk.
Indiana.....	Kentland.....	March 4, noon.....	Constructing macadam or gravel road.....	Newton County Com'r.
Michigan.....	Kalamazoo.....	March 4, 5 P.M.....	Constructing 30,000 sq. yds. street paving.....	M. C. Taft, City Engineer.
Indiana.....	Decatur.....	March 4.....	Gravel and macadam roads, 3 twps.....	C. D. Lewton, Co. Auditor.
Indiana.....	Mishawaka.....	March 4.....	Laying 37,000 sq. yds. brick, 12,000 yds. asphalt.....	William S. Moore, City Engineer.
Maryland.....	Annapolis.....	March 4.....	11,000 sq. yds. macadam; 6,500 cu. yds. excav.; 2,000 lin. ft. new cement curb, reset 4,600 ft. old.....	Phil. E. Porter, City Clerk.
Indiana.....	Goshen.....	March 4.....	Laying 10,500 yds. brick pavement and 5,000 ft. curb and gutter.....	C. C. Witt, City Engineer.
New Jersey.....	Branchburg.....	March 5, 10 A.M.....	Macadamizing 3.14 miles of road.....	Board Freeholders, Somerville.
California.....	Stockton.....	March 5, 10 A.M.....	Macadamizing 3,326 ft. Cherokee Lane rd.....	Eugene D. Graham, Clk. Supervisors.
Wisconsin.....	Milwaukee.....	March 5, 10:30 A.M.....	Creosote wood block, curb, etc., Wells St.....	Charles J. Poetsch, Chm. B. P. W.
Indiana.....	Vincennes.....	March 5, 1 P.M.....	Constructing 2 1/2 miles gravel road.....	John T. Scott, Co. Auditor.
Indiana.....	Sullivan.....	March 5.....	Building 3 miles of granite rd. in Grill; 4 miles stone rd. Jefferson; several miles stone, Cass.....	L. O. Turnwood, Trustee.
Ohio.....	Wooster.....	March 5.....	Constructing State road under new Ohio law.	Sam Huston, Columbus, Com'r.
Ohio.....	Lima.....	March 5.....	Grading, curbing and pave, vit. brick on 6-in. concrete base, 34,000 sq. yds., 2 sts.....	L. L. Crumrine, Secy. Bd. Pub. Serv.
Iowa.....	Des Moines.....	March 6, 11 A.M.....	Vit. brick and cement walks and driveways for one year; also extra grading per cu. yd.....	W. W. Wise, Bd. Pub. Works.
New York.....	Brooklyn.....	March 6, 11 A.M.....	Grading, paving and sidewalks, several streets	Bird S. Coler, Boro. Pres.
Ohio.....	Akron.....	March 6.....	Constructing State highway.....	Sam Huston, Columbus, Comr.
Ohio.....	Canton.....	March 6.....	Sidewalks and curb, inc., several miles concrete or sawed flagstone; also crosswalks 7 or more streets.....	B. F. Faust, City Clerk.
Indiana.....	Van Buren.....	March 7, 11:30 A.M.....	Constructing 7,915 ft. gravel road.....	James L. Burns, Co. Aud. Brazil.
Indiana.....	Winchester.....	March 7, 1 P.M.....	Grade and pave, crushed stone, 13 miles.....	Jack Pogue, County Auditor.
Illinois.....	Nashville.....	March 7.....	Brick paving, to cost \$8,250.....	P. Ziegel, Mayor.
Indiana.....	Indianapolis.....	March 7.....	Grade, pave and repair 40,000 ft. 3 roads.....	Mack Pogue, Co. Auditor.
Wisconsin.....	Two Rivers.....	March 7.....	Improving 1,018 ft. Williams Street.....	Board of Public Works.
Ohio.....	Newark.....	March 7.....	Constructing State highway.....	Sam Huston, Columbus, Com'r.
Indiana.....	Valparaiso.....	March 8.....	Laying cement curb and gutter on 3 streets.	Robert Ewing, City Clerk.
Indiana.....	Princeton.....	March 8.....	Constructing 11 miles of gravel road.....	Harry Embree, Co. Auditor.
Ohio.....	Cleveland.....	March 9.....	Grading, draining and paving two roads.....	A. B. Lea, County Engineer.
Washington.....	Seattle.....	March 9.....	Grading Fourth Avenue and cross streets.....	R. H. Thomson, City Engineer.
Minnesota.....	Duluth.....	March 10.....	Paving Jefferson St., tar, macadam or asphalt.	City Engineer.
Ohio.....	Bellefontaine.....	March 11.....	Paving West Columbus Avenue.....	Board of Public Service.
Pennsylvania.....	Titusville.....	March 11.....	23,800 yds. paving, 11,514 ft. curb, etc., Main Street.....	H. A. Holstein, City Engineer.
Wisconsin.....	Fond du Lac.....	March 12, 2 P.M.....	9,073.54 yds. tar macadam pavement, 5,209.54 ft. combined curb and gutter, Park Avenue.....	L. A. Pettibone, City Engineer.
New Jersey.....	Camden.....	March 13, 11 A.M.....	Macadam, 1.78 miles, Cove rd., Merchantville.....	J. J. Albertson, Co. Engineer.
Utah.....	Salt Lake City.....	March 14.....	Paving, macadamizing, repairing pavements, curbs and gutters; all materials; cost, \$515,000.....	L. O. Kelsey, City Engineer.
New York.....	Watertown.....	March 14, 5 P.M.....	Paving 21,000 sq. yds., 5 sts., curbs, catch basins, etc.....	Henry E. Baker, City Engineer.
Nebraska.....	Omaha.....	March 16.....	Paving 7,100 sq. yds. of Military Road.....	D. M. Haverly, Clerk.
Wisconsin.....	La Crosse.....	March 20.....	Laying 40,000 sq. yds. granite top macadam; 2,700 yds. brick; 9,220 yds. creosoted block.....	W. S. Woods, City Engineer.
<b>Water Supply</b>				
New York.....	New York.....	February 27, 2 P.M.....	Excavating pipe trenches, Seventh Ave.....	John F. O'Brien, Water Comr.
New York.....	New York.....	February 27, 2 P.M.....	Stopcocks, hydrants, boxes, fenders, etc.....	John F. O'Brien, Water Comr.
Utah.....	Salt Lake City.....	February 28, 11 A.M.....	Contract for laying water mains in 1907.....	F. J. Leonard, Chm. Bd. Pub. Works.
Chihuahua, Mexico.....	Parral.....	February 28.....	300 water meters for first installations.....	Junta de Mejoras Materiales.
Pennsylvania.....	Spring City.....	March 1, 10 A.M.....	Watermains, Inst. for Feeble Minded.....	P. H. Johnson, Land Title Bldg., Phil.
Manitoba.....	Winnipeg.....	March 1, 2:30 P.M.....	Water pipes, specials, manholes, valves, etc.....	H. N. Ruttan, City Engineer.
District of Columbia.....	Washington.....	March 2, noon.....	Furnishing fire hydrants.....	H. B. F. Macfarland, Commissioner
Massachusetts.....	Springfield.....	March 2, noon.....	Supplying 2,400 twelve-ft. lengths c. i. pipe, 6 to 88-in.; also 80,000 lbs. specials.....	E. E. Stone, Chm. Water Com'r.



## Water Supply—Continued

Missouri.....	Rolla.....	March 4, 7 P.M.....	Water works system, 21,000 ft. pipe, 33 hydrants, etc.....	Hains & McRae, Consulting Eng'rs.
Pennsylvania.....	Homestead.....	March 4, 7:30 P.M.....	Erecting steel water tank, 200,000 to 300,000 gals. capacity, 100 ft. high.....	Andrew Hill, Borough Clerk.
Kansas.....	Holton.....	March 5, 9 A.M.....	Installing electric-light and water works plant with distributing system.....	S. D. Kuhn, Mayor.
North Dakota.....	Williston.....	March 5, 10 A.M.....	Excavating 420,000 cu. yds. earth, and constructing pumping station, requiring 120,000 ft. 6-in. lumber, 1,300 cu. yds. concrete, and 10,000 lbs. structural steel.....	H. A. Stoops, Engineer.
Georgia.....	Decatur.....	March 5.....	Constructing water works system.....	H. S. Jaudon, Thomasville, Eng'r.
Massachusetts.....	Fort Andrews.....	March 5.....	Extending water distributing system.....	Capt. Geo. L. Goodall, Q. M.
Iowa.....	Rockwell City.....			
Utah.....	Salt Lake City.....	March 7, 11 A.M.....	Constructing 12,004 ft. 36- and 30-in. continuous wooden stave or c. i.; and 4,860 ft. 12- to 30-in. c. i. pipe; relay 3,300 16-in. pipe, valves, etc.....	Louis C. Kelsey, City Engineer.
Virginia.....	Fort Monroe.....	March 7, noon.....	Constructing water distributing system.....	Capt. R. H. C. Kelton, Q. M.
Manitoba.....	Winnipeg.....	March 7, noon.....	Two steel caissons, 15 x 43 ft.....	M. Peterson, Sec'y Bd. Control.
New York.....	New York.....	March 7, 3 P.M.....	Laying water mains in Central Park.....	Moses Herrman, Pres. Park Board.
Ohio.....	Springfield.....	March 8.....	Pipe, cement work, etc.; 12 lettings.....	W. H. Sieverling, City Engineer.
New York.....	New York.....	March 13, 2 P.M.....	Furnishing c. i. castings; remodeling Ridge-wood pumping station; coal-weighing scales.....	John H. O'Brien, Water Com'r.
Colorado.....	Ault.....	March 15.....	Constructing \$30,000 water works.....	Engineer Shattuck, Greeley.
Manitoba.....	St. Boniface.....	March 15, 5 P.M.....	Supplying 25 hydrants.....	Theo. Pertrand, Mayor.
New York.....	New York.....	March 18, 2 P.M.....	Constructing 10.73 miles Catskill Aqueduct; 1,058,300 yds. excavation; 256 yds. concrete masonry; 340,000 bbls. Portland cement, 125,000 lbs. steel, etc.....	J. Waldo Smith, Ch. Eng'r, Bd. W. S. Bureau of Supplies and Accounts.
California.....	California City Point.....	March 19, 10 A.M.....	Constructing pumping plant; Schedule 400.....	Navy Dept, Washington, D. C.
Saskatchewan.....	Saskatoon.....	March 20.....	Pipe laying, 20,000 ft. trenching; concrete foun. and housing for water tower; sedimentation basin.....	Willis Chipman, Toronto, Ch. Eng'r.

## Sewerage

Ohio.....	Ravenna.....	February 28.....	Constructing sanitary sewer system.....	W. H. Linton, City Engineer.
South Carolina.....	Orangeburg.....	February 28.....	Constructing 10 miles 8 to 20-inch sanitary sewer, estimate, \$52,488.20.....	Edward Hawes, Jr., City Engineer.
Utah.....	Salt Lake City.....	February 28.....	All sewer work for 1907.....	Louis C. Kelsey, City Engineer.
Pennsylvania.....	Spring City.....	March 1, 10 A.M.....	Sewage disposal plant, Feeble Mind Inst.....	P. H. Johnson, Land Title Bldg, Phil.
Illinois.....	Sterling.....	March 1.....	Constructing pipe sewers; cost, \$37,000.....	J. B. Lewis, Mayor.
Iowa.....	Des Moines.....	March 4, 11 A.M.....	Constructing 13,154 ft. 8 to 24-in. sewer.....	W. W. Wise, Bd. Pub. Works.
Ohio.....	Willoughby.....	March 4, noon.....	Constructing Central St. storm sewer.....	C. C. Jenkins, Village Clerk.
Alabama.....	Montgomery.....	March 4, noon.....	Constructing sanitary sewers in 3 sts.....	F. S. Williams, City Treasurer.
District of Columbia.....	Washington.....	March 4, noon.....	Constructing junction section, trunk sewers.....	H. B. F. Macfarland, Commissioner.
Wyoming.....	Sheridan.....	March 4, 7 P.M.....	Constructing sewer extension.....	E. W. Long, City Clerk.
Missouri.....	Rolla.....	March 4, 7 P.M.....	Sewer system; 20,000 ft. pipe, 10 flush tanks, etc.....	Hains & McRae, Consulting Eng'r.
Iowa.....	Des Moines.....	March 5, 11 A.M.....	Constructing 10,440 ft. 10 to 20-in. sewer.....	W. W. Wise, Bd. Pub. Works.
Nebraska.....	Fairbury.....	March 5, 6 P.M.....	Constructing 8-in. sewer lateral; cost, \$4,218.....	P. L. Rain, City Clerk.
Missouri.....	Nevada.....	March 5.....	Constructing sewers, District No. 7.....	S. L. Higgins, City Clerk.
Ohio.....	Canton.....	March 6.....	Vit. sewer pipe, 7 or more streets.....	B. F. Faust, City Clerk.
Michigan.....	Ann Arbor.....	March 6.....	Constructing sanitary sewers.....	City Engineer.
Ohio.....	Lima.....	March 9.....	Constructing 12-in. sewer in S. Baxter St.....	L. L. Crumrine, Sec'y Bd. Pub. Serv.
Pennsylvania.....	Scranton.....	March 9.....	Constructing lateral sewers, several streets.....	G. R. Acker, Dir. Dept. Pub. Wks.
Iowa.....	Des Moines.....	March 11, 11 A.M.....	Laying 594 ft. 12-in. vit. pipe sewer, E. 5th St.....	W. W. Wise, Bd. Pub. Works.
South Dakota.....	Aberdeen.....	March 11, 8 P.M.....	Constructing 600,000-gal. septic tank of reinforced concrete.....	F. W. Raymond, City Auditor.
Wisconsin.....	Fond du Lac.....	March 12, 2 P.M.....	Laying 535 ft. 10-in., 633 ft. 12-in. and 630 ft. 15-in. storm sewer pipe, 3 sts.....	L. A. Pettibone, City Engineer.
Pennsylvania.....	Sayre.....	March 12, 7:30 P.M.....	Constructing trunk line sewer; 4,400 ft. 24-in., 1,060 ft. 20-in., 560 ft. 18-in. pipe.....	H. H. Mercereau, Boro. Clerk.
Iowa.....	St. Bernard.....	March 14.....	Constructing sewers in certain streets.....	George Schroeder, City Clerk.
Kentucky.....	Winchester.....	March 15.....	Constructing \$40,000 sewerage system.....	Dr. J. L. Weber, Chm. Com'rs.
Ohio.....	Willoughby.....	March 18.....	Constructing main sewer No. 1.....	C. C. Jenkins, Village Clerk.
Iowa.....	Burlington.....	March 18.....	Constructing sewers in certain streets.....	John F. Winters, City Engineer.
New York.....	White Plains.....	March 20, 2:30 P.M.....	Constructing 12 miles 3 to 6 ft. reinforced concrete circ. sewer, also 3 miles 6½ to 8½ ft. circ. concrete-lined tunnel.....	Frank N. Glover, Sec'y Bronx Valley Sewer Commission.
Pennsylvania.....	McKeesport.....	April 1.....	Two 6-ft. sewers, each 3 miles long.....	T. W. White, City Engineer.
Ohio.....	Toledo.....	April 1.....	Constructing sewer system; cost, \$40,000.....	F. I. Consaul, City Engineer.
Louisiana.....	Crowley.....	April 2, 6 P.M.....	Constructing sewer system, inc. 57,460 ft. 8 to 18-in. pipe, 24 flush tanks, 64 manholes and pumping station with electric pumps.....	Shelby Taylor, Mayor.

## Public Buildings

New York.....	Fort Hamilton.....	February 28.....	Double set barracks, 8-set officers' quarters, post exchange and gym., and 3 brick bldgs. Heating system at Indian School.....	Capt. P. C. Hains, Constr. Q. M.
Arizona.....	Phoenix.....	March 1, 2 P.M.....	Erecting County jail; cost, \$25,000.....	Charles W. Goodman, Supt.
Montana.....	Livingston.....	March 1.....	Bldg. 38 x 54, cost, \$10,000, for Industrial School for Girls.....	Ray H. Stevens, Co. Clerk.
Ohio.....	Delaware.....	March 1.....	Alterations, apparatus, etc., two schools.....	Thomas F. Dye, Secretary.
New York.....	New York.....	March 4, 11 A.M.....	Building engine house at Highland Park.....	C. B. J. Snyder, Supt. Bldgs.
Alabama.....	Montgomery.....	March 4, noon.....	Repairs to guard house.....	R. S. Williams, City Treasurer.
New Mexico.....	Port Wingate.....	March 4.....	Erecting \$15,000 City Hall and auditorium.....	Constructing Quartermaster.
Georgia.....	Hawkinsville.....	March 4.....	Interior finish U. S. Post Office building.....	C. W. Harris, City Clerk.
Ohio.....	Cleveland.....	March 5, 3 P.M.....	Building stable for sch. of equitation.....	J. K. Taylor, Washington, D. C.
Kansas.....	Fort Riley.....	March 6, 11 A.M.....	Complete hospital building, Indian School.....	Capt. W. M. Whitman, Q. M.
Pennsylvania.....	Carlisle.....	March 8, 2 P.M.....	Constructing dormitory, N. Ga. Agr. College.....	Maj. Wm. A. Mercer, Superintendent
Georgia.....	Dahlonega.....	March 9, 6 P.M.....	Bldg. Technical high school; cost, \$250,000.....	Rufe H. Baker.
Ohio.....	Cleveland.....	March 10.....	Erecting \$60,000 police station.....	F. S. Barnum, Supt. Bldgs., B. E.
South Carolina.....	Charleston.....	March 11.....	Wiring and repairs to engine house.....	J. H. Dingle, City Engineer.
California.....	Pasadena.....	March 12, 0 A.M.....	Library bldg. State Univ'y, cost, \$60,000.....	Heman Dyer, City Clerk.
North Dakota.....	University.....	March 12, 10 A.M.....	Bldg. power house, U. S. Agricultural Dept.....	Patton & Miller, Chicago, Ill., Archts.
District of Columbia.....	Washington.....	March 12, 2 P.M.....	Workshop, office bldg. and Supt.'s residence.....	B. T. Galloway, Chm. Bldg. Com.
Nebraska.....	Genoa.....	March 13, 2 P.M.....	Constructing Federal Building.....	Wm. H. Winslow, Supt. Indian Sch.
Washington.....	Spokane.....	March 14, 3 P.M.....	Building 8 lock houses and out buildings.....	J. K. Taylor, Washington, D. C.
West Virginia.....	Wheeling.....	March 15, 11 A.M.....	Eight-room addition, Spring St. school.....	Capt. F. C. Boggs, U. S. Eng'rs.
Ohio.....	Toledo.....	March 15, noon.....	Constructing public library building.....	L. I. Donat, Clk. Bd. Education.
Kansas.....	Junction City.....	March 20.....	Remodeling plumbing Gov. Hosp. for Insane.....	W. F. Muenzenmayer, Secretary.
District of Columbia.....	Washington.....	March 20, 2 P.M.....	Installing plumbing and drainage apparatus, new Public Library; security, \$30,000.....	E. A. Hitchcock, Sec. Int. Dept.
New York.....	New York.....	March 21, 3 P.M.....	Constructing, complete, U. S. Post Office.....	N. Y. Park Board
Michigan.....	Owosso.....	March 21.....	Officers' quarters and dispensary building.....	J. K. Taylor, Washington, D. C.
South Carolina.....	Charleston.....	March 23, 11 A.M.....	Constructing Post Office and Court House.....	Bureau of Yards and Docks, Navy Dept., Washington, D. C.
Wisconsin.....	Green Bay.....	March 23, 3 P.M.....	Pldgs at Naval Training Station.....	J. K. Taylor, Washington, D. C.
Illinois.....	North Chicago.....	April 1, noon.....	Four-story addition to school; cost, \$10,000.....	Jarvis Hunt, Chicago, Architect.
Ohio.....	Marion.....	April 1.....	Furnishing plumbing fixtures H. R. Bldg.....	Geo. B. Christian, Jr., Clerk Bd. Ed.
District of Columbia.....	Washington.....	April 3.....		Elliott Woods, Supt. Capitol.

## Bridges

Minnesota.....	Crookston.....	February 28, 10 A.M.....	Raising new bridge over Red River, 3 ft. ....	N. A. Howard, County Auditor.
Kentucky.....	Louisville.....	March 1.....	Constructing Oak St. Viaduct; cost, \$100,000.	Joseph P. Claybrook, City Engr.
Ohio.....	Lockland.....	March 1.....	Building substructure, bridge over canal.....	W. H. Blair, Pres. Co. Comrs., Cincinnati.
Ohio.....	Cleveland.....	March 2, 11 A.M.....	Replanking North Rocky River Bridge.....	A. B. Lea, County Engineer.
Kansas.....	Leavenworth.....	March 4, noon.....	Building bridge No. 27; also concrete culv't.	J. W. Neihaus, County Clerk.
Mississippi.....	Meridian.....	March 4, 2 P.M.....	Building wooden bridge across Toombs Cr.	B. V. White, Clk. Bd. Supervisors.
Maryland.....	Centreville.....	March 5, noon.....	Building reinforced concrete bridge; repairing abutments and wingwalls and raising 18 ins.	John H. Evans, Co. Comr.
Nebraska.....	Papillion.....	March 5, noon.....	Erecting 11 wooden pile bridges.....	P. D. McCormick, County Clerk.
California.....	Fresno.....	March 5, 2 P.M.....	Constructing 100-ft. trestle, Kingston bridge.	Board of Supervisors.
North Carolina.....	Smithfield.....	March 5.....	Erecting steel bridge across Neuse river.....	Johnston Co. Comrs.
California.....	Hollister.....	March 5.....	Constructing Tequesquito Bridge.....	Board of Supervisors.
Georgia.....	Hawkinsville.....	March 5.....	Constructing bridge across Ocmulgee River.....	T. G. Holder, City Clerk.
Kansas.....	Paola.....	March 5.....	Building 5 bridges; cost \$25,000, \$4,000, \$1,500, \$2,500, and \$1,200, various twps.	W. M. Krumsick, Chm. Co. Comrs.
Indiana.....	Kokomo.....	March 6, 11 A.M.....	Building Cortland Ave., reinforced arch.....	Wm. L. Benson, Co. Auditor.
Ohio.....	Cleveland.....	March 6, 11 A.M.....	Concrete steel culvert, concrete abutments, steel concrete floor, Euclid Twp.....	A. B. Lea, Co. Surveyor.
New Jersey.....	Hoboken.....	March 7.....	New viaduct, 14th St., and roads connecting.	Walter O'Mara, Clerk County Freeholders, Jersey City.
Ohio.....	Cleveland.....	March 9, 11 A.M.....	Concrete arch culvert; also steel bridge.....	A. B. Lea, County Surveyor.
North Dakota.....	Grand Forks.....	March 12.....	Building wood and steel bridges in County.	President Hunter, Co. Comrs.
New Jersey.....	Camden.....	March 13, 11 A.M.....	Superstructure, 96 ft. long, for through truss highway bridge at Clements Bridge.....	J. J. Albertson, County Engineer.
West Virginia.....	Williamson.....	March 15.....	Building steel bridge 580 ft. long, 90 ft. high.	H. M. Payne, Ch. Engr. Mingo Coal Co.
Mississippi.....	Greenwood.....	April 1.....	Building bridge 300 ft. long.....	C. W. Crockett, Chauncery Clerk.
Louisiana.....	New Orleans.....	April 29, 1 P.M.....	Constructing viaduct in Algiers.....	Charles R. Kennedy, Comptroller.
Miscellaneous				
Ohio.....	Cleveland.....	February 28, noon.....	Instantaneous hot water heaters, bath house.	A. R. Callow, Secy. Bd. Pub. Service.
New York.....	Hudson.....	February 28.....	Electric lighting for sts. and public buildings for 3 or 5 yrs., from Jan. 6, 1908.....	Wm. Wortman, City Clerk.
Ontario.....	Streetsville.....	February 28.....	Constructing concrete dam and powerhouse.....	John S. Fielding, Toronto.
Michigan.....	Adrian.....	March 1.....	Removing garbage, 1 year from April 1.....	John Mawdsley, City Clerk.
Colorado.....	Aspen.....	March 1.....	Erecting power plant, inc. three 450-kw., 11,000 volt, 3-phase, 60-cycle generators, dir. con. to waterwheels under 500-ft. head.	C. E. Doolittle, Manager.
District of Columbia.....	Washington.....	March 5, 10 A.M.....	Rebuilding garbage destructor Sch. 417.....	Bur. Sup. and Accts., Navy Dept.
Missouri.....	St. Louis.....	March 5, noon.....	Electric light wiring, St. Louis work house.....	A. J. O'Reilly, Pres. B. P. I.
Ohio.....	Middletown.....	March 5, noon.....	Furnishing 14,700 bbls. Portland cement.....	State Bd. Pub. Wks., Columbus.
Florida.....	St. Augustine.....	March 5.....	Digging and constructing Hastings canal.....	W. Wallace Snow, Clk. Co. Comrs.
Ohio.....	Columbus.....	March 5.....	Rebuilding 12 locks; also concrete dam 1,850 ft. long across Maumee River.....	Chas. E. Perkins, Ch. Eng. B. P. W.
Ohio.....	Columbus.....	March 5.....	Rebuilding 14 locks on canal; 12,000 bbls. Portland cement; 80,000 ft. B. M. oak lumber, wrought iron and steel.....	Chas. E. Perkins, Ch. Engr. B. P. W.
Mississippi.....	Hattiesburg.....	March 6.....	Building complete street railway plant.....	A. F. Thomasson, Secy. Trac'n Co.
Kansas.....	Fort Leavenworth.....	March 7, 11 A.M.....	Complete fire-alarm telegraph system.....	Capt. J. E. Normoyle, Q. M.
Mississippi.....	Natchez.....	March 7, 4 P.M.....	Lighting for 10 years, from March 7, 1908.....	S. B. Stewart, Chm. Light Com.
New York.....	Yonkers.....	March 7, 8 P.M.....	Erecting chimney 110 ft. high, 5-ft. diameter.	John J. Devitt, Pres. Water Comrs.
California.....	Pasadena.....	March 12, 9 A.M.....	Furnishing hose-wagon with modern eq'p't.	Heman Dyer, City Clerk.
Ontario.....	Ottawa.....	March 10, noon.....	Mounted police clothing supplies.....	Fred White, Comptroller.
Iowa.....	Des Moines.....	March 20.....	Dredging, rip-rap work, concrete construct'n, etc., Des Moines and Racoon Rivers; cost, \$200,000.....	George D. Dobson, City Engr.
Manitoba.....	Brandon.....	April 11, noon.....	Supplying 6,000 to 8,000 bbls. Port. cement.	W. H. Shillinglaw, City Engr.

## STREET IMPROVEMENTS

**Montgomery, Ala.**—An ordinance is before Council authorizing an issue of \$29,000 bonds for street improvements.

**Auburn, Cal.**—Plans and estimates are being prepared for the complete rebuilding of the streets and thoroughfares; a bond election will probably be called by the Board of Trustees.

**San Francisco, Cal.**—Dr. G. W. Merritt, of the Howard Street Improvement Association, has been informed that it will require \$135,000 for constructing pavements in Howard street between Second and Eighth streets, and \$250,000 for new sewers. For repairing and recubing Mission street, from Twentieth to Armory, it is estimated \$55,000 will be necessary. City Engineer Woodward.

**San Jose, Cal.**—Bids are invited for constructing artificial stone sidewalks in Market, San Fernando, Second, Third and San Antonio streets.—H. D. Mathews, Mayor; Roy E. Walter, City Clerk.

**Athens, Ga.**—The County Commissioners have called an election, March 23, to vote on issue of \$130,000 bonds for building county roads.

**Savannah, Ga.**—The city contemplates owning and operating its own asphalt repair plant; dealers in asphalt and manufacturers of asphalt plants are requested to contribute information.—J. W. Howard, City Engineer.

**Lafayette, Ind.**—The Town Board is preparing to pave certain streets.

**Salina, Kan.**—Council has authorized an issue of \$11,500 paving bonds.

**Topeka, Kan.**—Council is considering petitions for paving and laying sidewalks in several streets; also for purchasing 25,000 feet of water pipe, and for constructing sewers.—J. H. Squires, City Clerk.

**Lexington, Ky.**—Council is considering petitions for constructing Woodland avenue south to the city limits; also for sewer and laying macadam; and for macadamizing Clay avenue from Central avenue to High street.—Thos. A. Combs, Mayor; J. E. Cassidy, City Clerk.

**Louisville, Ky.**—The Board of Public Works has ordered the paving of the following streets with vitrified brick blocks this spring: Dumsomli, Sixteenth and Seventeenth; the distance to be improved is one mile.

**Detroit, Mich.**—The Council Committee on Streets has recommended that the brick bids of Robt. Yogg, F. B. Stevens and W. G. Thomas be accepted; about 8,000,000 bricks are to be used this season.

**Jackson, Mich.**—An ordinance is before Council authorizing an issue of \$26,000 bonds for paving purposes.

**Duluth, Minn.**—The city has decided to improve Hammond avenue with macadam.

**St. Joseph, Mo.**—Ordinances are being considered for grading Ridenbaugh street from Thirtieth to the Mount Mora road, and of Calhoun street from Frederick avenue to Twenty-fifth street.

**St. Louis, Mo.**—The Municipal Assembly has passed ordinances to improve seven streets and alley by grading and laying vitrified brick on a base of Portland cement concrete 6 inches deep and a 2-inch bed of sand; also several streets with asphalt and bitulithic pavement and for a number of granitoid sidewalks.—A. J. O'Reilly, President Board of Public Improvements; W. B. Dryden, Secretary.

**Fremont, Neb.**—Bids will be received until March 1 for the purchase of \$25,000 5-year 4 per cent. paving bonds.—S. F. Stiles, City Clerk.

**Bridgeport, N. J.**—Council is arranging for the paving of Atlantic street.

**Wilson, N. C.**—The County Commissioners have petitioned the Legislature for authority to issue \$300,000 bonds for street improvement.

**Akron, O.**—The County Commissioners and the State Highway Commission will join in the payment of the cost of paving two miles of road on Medina street and West Market street, the cost being \$13,000.

**Ashtabula, O.**—Bids are soon to be invited for paving Lake, East Sibley and Tyler avenues, and curbing the same with a combination cement, curb and gutter, paving the roadway 36 feet wide with asphalt block on a concrete foundation.—Frank W. Wagner, City Clerk.

**Barberton, O.**—Legislation has passed Council for paving and sewerage the north side of the Erie tracks; Cornell street and Bolivar road may also be paved.

**Bellefontaine, O.**—Solicitor Campbell announces that legislation for paving Detroit street will be introduced immediately and bids for paving this thoroughfare will be advertised about the middle of April.

**Cincinnati, O.**—An ordinance is before Council providing for an issue of \$40,000 bonds for a municipal asphalt repair plant.

**Chagrin Falls, O.**—City Solicitor Urbin is preparing legislation for paving Front and Second and other streets with brick; an engineer is to be retained to make the necessary profiles and specifications.

**Cleveland, O.**—The County Commissioners have made plans to pave 14 miles of roadway this year; the county road, a mile south of Bedford, is to be paved and a section three miles long on the Brecksville road will be included in the general improvement; the work will cost \$20,000 a mile; the material has not been definitely specified; brick and macadam are both to be considered.

**Creston, O.**—Council has secured engineers to survey the main street to make plans and estimates for having the street paved.

**Cuyahoga Falls, O.**—Preliminary legislation for paving Front and Second streets has passed Council; an engineer is to be employed to prepare plans and specifications.

**Dayton, O.**—Bids will be received for paving of many streets; the materials required are: Brick, asphalt, bituminous macadam, cement curb, stone curb, etc.—F. Peters, President of the Board of Public Service.

**Fostoria, O.**—Council has decided to pave Center street and will take up the question of High and Berry streets at a later date.

**Greenfield, O.**—Council is arranging to construct a large number of sidewalks the coming season.

**Martins Ferry, O.**—Ordinances for paving Walnut, Third, Fayette, Clay, Hickory, Locust and North Fourth streets have passed Council; it is also decided to pave Dewey, Second, Lombard and Burlington road before the summer is over; plans for these improvements are to be prepared immediately.

**Massillon, O.**—Estimates have been presented to Council by City Engineer Howald, as follows: Diamond alley, paving with gravel and sand filler, 978 square yards, at \$1.10 per square yard, total cost, \$1,470.90; an alley between Main and Wellman streets, from Prospect to Cedar streets, 634 square yards, total cost, \$994.90; South East street, between South street and the Pennsylvania right of way, 2,245 square yards, total cost, \$3,328.88; Bank street, from Main to Tremont street, 1,000 square yards, total cost, \$1,532.50; Summit street, from Tremont to Water streets, 2,500 square yards, total cost, \$3,330; Railroad street, from Mill street to East street, total cost \$3,098.89; each of the estimates was for paving, some to have the curb reset and some to have new curbing; the resetting of curbing is a part of the estimate.

**Fort Clinton, O.**—Property owners on West Second street propose to have that thoroughfare paved the coming summer.

**Portsmouth, O.**—Council is preparing to pave certain portions of Lincoln street.



**Toledo, O.**—H. P. Streicher will pave Lawrence avenue with bitulithic at \$7,600; contracts for brick were awarded as follows: Kerlin Bros., Logan block; Garrigan Bros., Metropolitan block; James Sheehan, Big Four block and Nelsonville block; Wm. McMahon will pave Norwood avenue at \$10,483; altogether over \$75,000 worth of paving contracts have been awarded.

**Xenia, O.**—Council is soon to take up the question of paving a large number of streets and the construction of several sidewalks with cement this season.—City Solicitor Miller.

**Youngstown, O.**—Bids will be opened, March 13, for \$58,000 West Federal street paving bonds, and \$6,380 Glenwood avenue grading bonds.—William I. Davies, City Auditor.

**Zanesville, O.**—Council expects to pass the necessary legislation for paving Moxahala avenue.

**Franklin, Pa.**—An ordinance providing for curbing and paving Fourteenth, Eighth, Otter, West Park and Elk streets have passed Council.

**Harrisburg, Pa.**—The Legislature has under consideration bill authorizing an issue of \$25,000,000 bonds for improving city roads.

**Philadelphia, Pa.**—The citizens of Germantown have petitioned for the paving of certain portions of Green street with wooden blocks.

**Bristol, Tenn.**—Council is preparing to expend \$50,000 improving streets.

**Nashville, Tenn.**—Bids will be received, March 12, for the purchase of \$125,000 Suburban street bonds and \$150,000 Commerce street extension bonds; interest, 4½ per cent.—H. S. Bauman, City Recorder.

**Ripley, Tenn.**—An election will be held, March 14, to decide the question of issuing \$10,000 bonds for street improvements.

**Salt Lake, Utah.**—Council has passed an ordinance providing for laying of many miles of cement sidewalks.

**Salem, W. Va.**—Bids will be received, March 14, for the purchase of \$31,000 5 per cent. 34-year paving and waterworks bonds.—R. L. Towles, Recorder.

## SEWERAGE

**Waynesboro, Ga.**—Robinson and Humphrey of Atlanta, Ga., have purchased \$60,000 sewer bonds for 103.

**Dundee, Ill.**—The question of issuing \$41,000 bonds for sewer system will be submitted to the voters in April.

**Elkhart, Ind.**—Plans for the big sewer for the southern part of the city have been completed by Engineer Smith; the structure will range from 48 inches to 18 inches in diameter.

**Princeton, Ind.**—Council has under consideration the establishment of a sewer system estimated to cost \$50,000.

**Durant, I. T.**—The citizens will vote, March 11, on issue of \$35,000 bonds for construction of sewerage system and extension of water mains, the election held a few months ago, when such a bond issue was approved, having been declared illegal.

**Lexington, Ky.**—Preliminaries have passed Council and been approved providing for extension of central main sewer to Central and Ashland avenues; also for construction of storm water sewer in Walton avenue; ordinance ordering the construction of sanitary sewer in South Lewiston street, from Maxwell to Winslow streets, has passed the Board of Councilmen.—Thos. A. Combs, Mayor; J. E. Cassidy, City Clerk.

**Detroit, Mich.**—Bids are invited for constructing vitrified crock lateral sewers in five alleys, Nos. 1785, 1786, 1787, 1788 and 1789; the construction of lateral sewers in five alleys, at prices estimated from \$1.25 to \$1.75 per lineal foot, has been recommended to Council.—J. J. Haarer, Commissioner of Public Works.

**River Rouge, Mich.**—Council has determined on a large bond issue to complete the sewer system.—Daniel Baron, President, Trustees.

**Charleston, Mo.**—The citizens will vote, next month, on issue of \$150,000 bonds for constructing a big drainage canal south from the corporation line to the Mississippi river.

**Joplin, Mo.**—Bids will be received for the construction of a sewer system; estimated to cost, \$200,000.

**Ashtabula, O.**—J. J. Terrell & Co. has the contract for constructing the Pittsburg and Washington street storm sewer at \$2,398.

**Columbiana, O.**—A special election will be held to decide the question of issuing \$38,000 bonds for constructing complete sewerage system.

**Coshocton, O.**—The petition of C. M. Bible and others for a sewer on Lee avenue has been presented to Council; resolutions for sewers on Hamilton, Wilson and Ninth streets have been passed.

**Dayton, O.**—Councilman Baker, of the Third Ward, has presented plans to Council for the construction of sanitary sewers for the Third Ward.

**Elyria, O.**—Hinker & Williams have been

awarded contracts for the construction of three sewers, aggregating 14,000 feet in length and costing \$10,659; they are also about to bid on the construction of a sewer in Glendale court; bids for the construction of sewers in Factory, Oak, Columbus and Waverly avenues, have been rejected and new bids will be invited; the Board of Public Service is considering the plans of Engineer Theobald for the siphon that is to connect the East river sewer with the system west of the East branch of the Black river.

**Hamilton, O.**—Plans and specifications have been prepared for a \$72,000 sewer in Crawford's Run.—L. A. Dillon, Engineer.

**Massillon, O.**—Engineer Howald, on February 27, submitted estimates for sewers to Council.

**Niles, O.**—The City Engineer is preparing plans for a sewage disposal plant.

**Springfield, O.**—The city has been granted the right to lay its proposed outfall sewer and temporary outlet through the property of the Peoria and Eastern Division of the Big Four Railroad, a distance of 5,200 feet; the estimated cost is \$38,846.91; City Solicitor Stewart L. Tatum has prepared a \$40,000 bond ordinance to cover the expenses; bids are invited for constructing the Yellow Springs street and North Side sewers; a low level sewer will be constructed along Buck creek.—W. H. Slevierling, City Engineer.

**Youngstown, O.**—Plans have been completed for sewers in Crescent, Caldwell, Ball, Central, Manning and one or two other streets.—Frank Lillie, City Engineer.

**Mangum, Okla.**—The citizens have voted \$15,000 bonds for sewer construction; the proposition to issue \$30,000 bonds to purchase the electric light plant was defeated.

**Dallas, Tex.**—The City Engineer is preparing to submit plans for the construction of a sewage plant.

**Wheeling, W. Va.**—Council has been empowered to provide for a \$500,000 bond issue for street and sewer improvements.

## WATER SUPPLY

**St. Auburn, Ill.**—Council has under consideration the establishment of a water system.

**Elkhart, Ind.**—It is likely that all bids for the waterworks plant will be rejected and the work re-advertised.

**Wynnewood, I. T.**—Bids will be received, March 10, for the purchase of \$8,000 5 per cent. 30-year waterworks bonds.—J. A. Boozer, Recorder.

**Pella, Ia.**—A special election will be held to decide the question of issuing \$35,000 bonds for the construction of light and water system.

**Frankfort, Kan.**—Council is taking steps towards securing a water system.

**Herrington, Kan.**—Council has purchased the water plant owned by a private corporation.

**Mineral, Kan.**—Bonds, \$10,000, have been voted for the construction of a water system.

**Louisville, Ky.**—Bids will be received, March 6, for the purchase of \$1,000,000 4½ per cent. waterworks bonds.—F. J. Herrmann, President of the Board.

**New Bedford, Mass.**—An ordinance has been passed providing for an issue of \$233,000 in bonds for waterworks purposes.

**Detroit, Mich.**—Plans are being prepared for reconstructing the present system by establishing many miles of high-pressure mains; estimated cost of improvements, \$500,000.—C. W. Hubbell, Engineer of the Water Board.

**Sutton's Bay, Mich.**—Council has \$50,000 waterworks bonds for sale.

**Wayne, Mich.**—Citizens are planning a waterworks system.—Address Jos. R. Hosie.

**Mankato, Minn.**—The City Recorder has been directed to advertise for bids for drilling new city well.

**Sauk Rapids, Minn.**—Jacob Heim has submitted a proposal to furnish water-power to the city to operate a city lighting plant.

**Perth Amboy, N. J.**—The Water Commissioners have decided to issue \$100,000 bonds for improving the water system.

**Trenton, N. J.**—The Water Commissioners are considering the matter of installing a meter system.

**Lockport, N. Y.**—Council has petitioned the Legislature for authority to issue \$60,000 additional waterworks bonds.

**Lumberton, N. C.**—Bids will be received, March 1, for the purchase of \$25,000 6 per cent. water and light bonds.—R. C. Lawrence, Treasurer.

**Jamestown, N. D.**—Council is arranging to extend water mains.

**Bellaire, O.**—Bids will be opened, March 19, for \$25,000 4½ per cent. bonds for waterworks improvements.—R. E. Crow, City Auditor.

**Cincinnati, O.**—The city officials have under consideration the establishment of a meter system, and will advertise for bids.

**Hamilton, O.**—W. H. Hill, of Cincinnati, who has been directed by the Board of Public Works to superintend the rebuilding of a water plant, is preparing specifications

for a four and six million gallon pump and tubular marine boiler.

**Jefferson, O.**—The voters have taken favorable action on the \$40,000 bond issue to build the waterworks plant; it is probable that water will be brought from springs south of town.

**Springfield, O.**—City Clerk Frank Crothers has been directed to advertise for bids for furnishing water pipe for the coming season; bids will be received by Council, March 26, for \$35,000 bonds for extending water mains, the Board of Public Service will advertise for bids so that work can be started as soon as the weather opens up.—William H. Slevierling, City Engineer.

**Stroud, Okla.**—Bids will be received, March 4, for the purchase of \$10,000 10 to 30-year 6 per cent. water bonds.—Jos. P. Freshour, Town Clerk.

**Pittsburg, Pa.**—The Mayor recommends that Council provide money for water extensions by bond issue without submitting it to a vote of the people.

**Houston, Tex.**—A new pumping station will be erected near Westmoreland.

**American Forks, Utah.**—Council has passed an ordinance providing for an issue of \$20,000 water bonds authorized by vote at the November election.

**Port Angeles, Wash.**—An election will be held to decide the question of issuing \$80,000 waterworks bonds.

**Seattle, Wash.**—The election at which \$2,250,000 water bonds were voted last September, is illegal, and another election will be held, necessitating a delay in advertising for bids and starting work.—R. H. Thomson, City Engineer.

**Waterville, Wash.**—The city has voted \$15,000 bonds for water system.

**Bruce, Wis.**—The city has voted issue of \$10,000 bonds for water system.

**Cartlerville, Quebec, Can.**—A system of waterworks is soon to be installed.—Charles Brandliers, Engineer.

**Lincoln, Ont., Can.**—The question of issuing \$10,000 bonds for waterworks will be submitted to a vote of the people.

**Regina, Sask., Can.**—Bids will be received March 4, for the purchase of \$100,000 4 per cent. debentures for improving water system.—J. Kolos Hunter, City Clerk.

**Sincoe, Ont., Can.**—The citizens will vote on the question of issuing \$75,000 bonds for the construction of a water system.

## LIGHTING AND ELECTRICITY

**Altmore, Ala.**—The Altmore Ice and Electric Company has been incorporated for the purpose of establishing an electric plant.

**Birmingham, Ala.**—F. M. Carney, J. E. McCoy and others, have formed a company which will conduct an electric light plant and ice factory; the company will take over the dynamo and wiring of the Altmore Mill and Gin Company, and install a new 60 or 70-horsepower boiler and engine, and a 5-ton ice plant; the electric plant will be able to carry from 1,000 to 1,200 lights, and the plans are such that they can double the capacity of the plant without any special change in the buildings.

**Anaheim, Cal.**—Sealed proposals for the construction of the Municipal Light and Waterworks plant will be received by the Board of Trustees, in accordance of plans and specifications on file in the office of Copeland & Schanack, Mechanical Engineers, Citizens' National Bank Building, Los Angeles.—Edw. B. Merritt, City Clerk.

**Arlington, Ga.**—Bids will be received, March 5, for the purchase of \$25,000 5 per cent. light and water bonds.—K. J. O'Neil, Clerk.

**Douglas, Ga.**—Bids will be received for the purchase of \$17,000 5 per cent 30-year light and water bonds.—Address City Clerk.

**Decatur, Ill.**—The directors of the Illinois Traction Company will meet shortly and decide as to the purchase of 1,200 gas stoves for the cars.

**Ladd, Ill.**—Council has decided to install an electric light plant for the village lighting.

**Lena, Ill.**—The Lena Electric Light and Power Company has been incorporated for \$12,000 by G. W. Bender, J. D. Hinds and A. J. Charity.

**Peoria, Ill.**—The Peoria Electric Light Company is arranging to furnish electric lights for the cities of Washington and Metamora.

**Plano, Ill.**—The Plano Heat, Light and Power Company will purchase additional boiler and generator.—F. Lindner, Manager.

**Mt. Vernon, Ind.**—The Mt. Vernon Electric Company is being organized to supply Cosyville, Cynthia, Waynesburg, with electric light system; the company proposes to build a large electric plant.

**Duncombe, Ia.**—The village is considering the idea of establishing an electric lighting system, and a Council committee has been appointed to ascertain the probable cost of the improvement.

**Tama, Ia.**—The citizens have voted bonds for municipal lighting plant.

**Fulton, Ky.**—W. W. Meadows is organizing

a light company for furnishing light for the city.

**Lexington, Ky.**—The Lexington Railway Company has been directed to place 120 arc lights on various streets, in accordance with the terms of its contract for lighting the city streets.—Thos. A. Combs, Mayor; J. E. Cassidy, City Clerk.

**Homer, La.**—The plant of the Homer Electric Company has been damaged by fire; loss, \$4,000; improvements will be made.

**Cumberland, Md.**—The Midland Electric Light Company has been organized at Cumberland, Md., by William B. Phillips, A. A. Davis and others; capital, \$5,000.

**Escanaba, Mich.**—Council has directed that an expert electrical engineer shall investigate the condition of electric plant, and report necessary improvements to be made.

**Joplin, Mo.**—The Joplin Light, Power and Water Company have petitioned for franchise to lay conduits and hang overhead wires for operating an electric light and power system.

**Albany, N. Y.**—The Economic Power and Construction Company has been authorized to issue \$250,000 in bonds for operating plants in Buffalo, Rochester and Syracuse and other large cities of the State.—William K. McFarland, President.

**Elyria, O.**—The Cleveland Engineering Company has been retained to prepare plans for a complete municipal lighting plant, a preliminary estimate of which amounts to about \$50,000; three engines will be required and a complete equipment provided.

**Warren, O.**—The Westminster College authorities are about to install a private electric plant for the use of that institution at Wilmington.

**Greensburg, Pa.**—The Westmoreland County Commissioners recommend the erection of an electric power plant for the Court House and jail and city buildings.

**Green River, Utah.**—The Green River Light and Power Company, of which Howard H. Merritt is Secretary, has applied to the Town Board for an electric light franchise, and also a street railway franchise, the electric lights to be installed and in perfect working order within one year, and the electric railway to be in operation in the town and through the valley north within two years.

**Ashland, Wis.**—Council has decided by a unanimous vote to have plans prepared and invite bids for a municipal lighting plant, which will be paid for by special bonds; an appropriation of \$5,000 has also been made to purchase land on White river for the development of water-power.

**Kaukauna, Wis.**—The present contract with the Kaukauna Electric Light Company expires in October; a municipal lighting plant may be established.

**Madison, Wis.**—The Regents of the State University are considering plans for a gas plant to furnish gas to the university.

**Marquette, Wis.**—William Holmes, of Menominee, owner of property at Grand Rapids, on the Menominee river, and possessor of the Legislative grants of Michigan and Wisconsin for the construction of a dam for the development of electric power, is making contracts with local manufacturers for the furnishing of electric power to them; he proposes to proceed at once to build a plant and transmit power to both Menominee and Marquette.

## FIRE EQUIPMENT

**Montgomery, Ala.**—Council will advertise for bids for erecting new fire station at Highland Park; a chemical engine and hose wagon will be purchased.

**Pasadena, Cal.**—The City Commissioners have asked Council to advertise for a new hose wagon, similar to the one used in Dayton.

**Carlinville, Ill.**—Council proposes to purchase additional fire apparatus.

**Collinsville, Ill.**—J. A. Kennedy is preparing plans for the erection of an engine house, estimated to cost \$6,000.—John E. Sminger, Fire Chief.

**St. Albans, Ill.**—The Village Council is planning to erect a 60-foot water tower with tank for fire protection.

**Burlington, Ia.**—The Mayor and Fire Commissioners are visiting cities in view to improving the fire protection.

**Lexington, Ky.**—The General Council has authorized Mayor Thos. A. Combs to purchase 3,000 feet of hose, at a price not exceeding 85 cents per foot, and one combination hose wagon and chemical engine, at a cost not exceeding \$2,300.—J. E. Cassidy, City Clerk.

**Menominee, Mich.**—The Fire Chief recommends the purchase of a modern fire-alarm system.

**Sante Fe, N. M.**—Council has decided to expend \$6,000 building new Fire Department headquarters; it is proposed to purchase hose carts and other fire apparatus.

**Addison, N. Y.**—Council has decided to purchase a fire bell suitable for the new City Hall; one measuring 52 inches in diameter and weighing 1,750 pounds will prob-

ably be procured.—Edward S. Hill, Secretary of Village Board.

**Binghamton, N. Y.**—The Fire Chief recommends the purchase of fire truck, estimated at \$3,300.—Chas. N. Hogg, Fire Chief.

**Troy, N. Y.**—The Commissioner of Public Safety has directed the committee to purchase fire truck; the residents of Beaman Park have petitioned for improved fire protection.

**Ithaca, N. Y.**—Council is arranging to build a fire house on East Hill.

**Kingston, N. C.**—Council has decided to purchase 500 feet of hose.—D. F. Wotten, Clerk of the Fire Department.

**Wooster, O.**—An ordinance is before Council authorizing an issue of \$20,000 bonds to secure fire protection; the Board of Public Service will purchase a combination chemical and hose wagon.

**Oklahoma City, Okla.**—Plans are being prepared for the erection of a fire station in the Third Ward.

**Portland, Ore.**—The Executive Board of the Council has decided to purchase two hose wagons, two second-size engines, one combination engine and hose wagon and equipment for fire-alarm and telephone system.

**Williamsport, Pa.**—The La France Engine Company, of Elmira, N. Y., was low bidder for repairs to No. 3 engine, and the Fire Committee has recommended that contract be awarded; a larger appropriation must be made for repairing No. 6 engine house.

**Roanoke, Va.**—H. H. Huggins is arranging to install sprinkling system in factory.

**Marshall, Wis.**—A fire company is being organized.—W. H. Raman, President.

## PUBLIC BUILDINGS

**Pine Bluffs, Ark.**—The School Board has decided to issue \$74,000 bonds for the erection of a school-house.

**San Rafael, Cal.**—The question of issuing \$8,000 bonds for the construction of a school-house is under consideration.—A. Bouick, Trustee.

**Hawkinsville, Ga.**—The citizens will vote, March 1, on the question of issuing \$15,000 5 per cent, 29-year City Hall and auditorium bonds.—J. F. Coney, Chairman.

**Bloomington, Ind.**—The Monroe County Commissioners will receive bids, March 20, for the purchase of \$54,000 3½ per cent Court House bonds.

**Elkhart, Ind.**—The citizens have voted \$25,000 bonds for the erection of a school-house.

**Evansville, Ind.**—The Legislature has authorized the city to issue \$156,000 school bonds.

**Wichita, Kan.**—The city has received authority to issue bonds for the construction of school-house.

**Minneapolis, Minn.**—The city has petitioned Legislature for authority to issue \$200,000 bonds for erecting a school-house.

**Laurel, Miss.**—P. J. Krouse, of Meridian, has been selected as Architect for the new Court House by the Board of Supervisors.

**Magnolia, Miss.**—The citizens will vote, March 22, on the question of issuing \$35,000 bonds for the erection of a school-house.

**Moss Point, Miss.**—The citizens have voted to issue \$20,000 bonds for the erection of a school-house.

**Water Valley, Miss.**—Bonds, \$30,000, have been voted for the erection of a school-house.

**St. Louis, Mo.**—The Board of Public Improvements has been authorized to expend \$10,000 for the erection of a horse hospital for the Fire Department.—A. J. O'Reilly, President; W. B. Dryden, Secretary.

**Lidgerwood, N. D.**—The city has voted \$7,500 bonds for school purposes.

**Benton Ridge, O.**—Bids will be received, March 6, for the purchase of \$12,000 4 per cent, 1 to 10-year school bonds.—B. C. Haffman, Clerk.

**Chaldon, O.**—Bids will be received, March 1, for the purchase of \$3,000 4½ per cent, High School bonds.—C. A. Mill, Clerk.

**Dayton, O.**—Bids will be received, March 7, for the purchase of \$250,000 Montgomery County building bonds.—H. J. Coffin, County Auditor.

**Elyria, O.**—Bids will be received, March 8, for the purchase of \$60,000 4 per cent, school bonds.—H. C. Harris, Clerk of the Board.

**Lancaster, O.**—Council has passed resolution authorizing \$25,000 bond issue to erect and equip a municipal hospital.

**Lima, O.**—The County Commissioners have decided to issue \$130,000 bonds for the erection of the Memorial Hall for Allen County; bids for the bonds will be opened March 26.

**Allegheny, Pa.**—Another modern manual training school is to be constructed; also a fine addition to the structure in the Spring Hill District of the Seventh Ward, both to cost \$80,000; the School Board will ask authority to issue \$70,000 4 per cent, 20-year bonds to help defray expenses.

**North Wales, Pa.**—The question of issuing \$30,000 school bonds will be submitted to a vote of the people.

**Conarcho, Tex.**—The city has been au-

thorized to issue \$13,500 5 per cent, 40-year school bonds.

**Prosser, Wash.**—An election will be held to decide the question of issuing \$10,000 in bonds for the erection of a school-house.

**Salt Lake City, Utah.**—An election will be held to decide the question of issuing \$250,000 bonds for school purposes.

**La Crosse, Wis.**—Council has under consideration the issue of \$60,000 bonds for building auditorium.

## STREET RAILWAYS

**Opelika, Ala.**—Council has granted a gas franchise and an electric street railway franchise, each for 30 years, to H. L. McKee, of Troy.

**Oakland, Cal.**—The Southern Pacific Railway Company has purchased a site for the purpose of erecting thereon the electric power plant for all local lines and for the extension of the local system to San Jose.

**Thomasville, Ga.**—The Thomasville & Northwestern has incorporated with a capital of \$75,000, to build a railroad fifty miles long from Thomasville through the counties of Thomas, Brooks, Colquitt and Berry, to a point on the Nashville & Sparks.—J. F. Harris, W. L. Adams and others, incorporators.

**Corydon, Ind.**—The Louisville, New Albany & Corydon will extend its line from Corydon, Ind., to New Albany, Ind.; the road may build a bridge over the Ohio river to secure entrance into Louisville, Ky., but this has not been definitely decided.

**Ft. Wayne, Ind.**—The old project of building an electric railway from Ft. Wayne in a northeasterly direction, taking in Maysville, Hicksville and Bryan, has been revived, with every indication of a successful consummation; the preliminary meeting was held in the law offices of Ballou & Hoffman, this firm having been retained to attend to the legal business of the company.

**South Bend, Ind.**—The Chicago, Lake Shore & South Bend Railway Company, which will run an electric line between South Bend and Chicago, is securing right of way, so that the line will be in operation in South Bend by September, in order to save the franchise and a cash forfeit.

**Albia, Ia.**—The Albia Electric Company has received a franchise to use the city streets for electric railway.

**Winterset, Ia.**—The citizens, February 12, voted to grant a franchise to the Des Moines, Winterset & Creston Electric Railway Company.

**Elizabethtown, Ky.**—Council has granted franchise to the Kentucky Central Railway Company to construct railroad.—A. J. Lenton, Louisville, Promoter.

**Owensboro, Ky.**—The Owensboro Street Railway Company has increased its capital stock from \$50,000 to \$150,000; the directors of the road have been petitioned to extend the line to the Catholic cemetery.

**Paducah, Ky.**—The Paducah Southern Electric Company has been incorporated to build a line 75 miles long, from Paducah, via Mayfield and Fulton, Ky., connecting with all railroads at these places.—W. A. Martin, President; H. H. Irvin, Secretary and Treasurer.

**Owosso, Mich.**—The proposed Lansing, Owosso & Saginaw Interurban Company, backed by Detroiters, has offered \$85,000 for the power plant and five miles of trackage in Owosso and Corunna, of the Owosso & Corunna Electric Company; it is said the latter company is holding out for a price of \$100,000; if the deal goes through, much of the system's power will be developed here, which will also be an important division point.

**Virginia, Minn.**—Council has granted franchise to the Mesaba Traction Company to use city streets for electric road.

**Wilmington, N. C.**—The Peoples' Electric Light and Supply Company has petitioned for franchise to build electric road.—John B. Belting, Counsel.

**Akron, O.**—A survey is being made for the construction of the Akron, Alliance & Youngstown Electric Railway; the entire distance of the road will be 60 miles; work will be commenced March 15.—B. M. French, Engineer-in-Charge.

**Canton, O.**—Work will soon be started on the construction of the Canton-Youngstown Interurban Railway, which is financed by New York and Chicago parties.—John E. Monnot, General Counsel.

**Mt. Vernon, O.**—Dr. J. F. Shrontz and Frank Elliott, of Martinsburg, are interested in building the Newark, Martinsburg & Mt. Vernon line; the company will build branch line to Wooster.

**Toledo, O.**—The Toledo & Columbus Railway Company, of Toledo, has amended its articles of incorporation to build, acquire, own, lease, operate and maintain a railroad to be operated by electricity or other power, having for its termini Toledo and Columbus, and passing through Lucas, Wood, Ottawa, Sandusky, Crawford, Marion, Delaware and Franklin Counties.



**New Berlin, Pa.**—The directors of the New Berlin & Greenfield Railway Company, at a recent meeting decided to continue their road to Centerville, Snyder Township.—L. C. Burd, Shamokin, President; I. J. Moyer, New Berlin, General Manager.

**Scranton, Pa.**—The Scranton Railway Company has purchased a tract of nine acres, and will expend \$300,000 in the erection of a plant.

**Shamokin, Pa.**—The Sunbury & Trevorton Electric Company, to operate a line from Sunbury to Plum Creek,  $2\frac{1}{2}$  miles, has been incorporated, with a capital of \$15,000.—Former Congressman Monroe H. Kulp, President.

**Amarillo, Tex.**—The Amarillo Street Railway Company has been organized and must begin work by April 11; H. A. Nobles, President; S. D. Wharton, Vice-President; John K. Shireman, Secretary.

**Roanoke, Va.**—The Roanoke Railway & Electric Company will improve and extend its lines.

## BRIDGES

**Godfrey, Ill.**—The voters have decided to build a bridge over Plasa Creek.

**Lacon, Ill.**—Council is considering ways and means to build an iron bridge during the summer.

**East St. Louis, Ill.**—A plan for improving the Broadway viaduct, which calls for widening the surface to the building line on both sides of the street, and will enable owners to have business houses opening on to the surface of the structure, has been presented by Mayor Silas Cook; by this improvement the viaduct would have a width of 80 feet, instead of 35 feet, as now constructed, and there would be a wide sidewalk on both sides, instead of the narrow stone walk, which is declared to be dangerous.

**Anderson, Ind.**—The bridge across the White river owned by the Indiana Union Traction Company collapsed; it will be rebuilt.

**Aurora, Ind.**—The County Commissioners have decided to repair the West Side bridge.

**Indianapolis, Ind.**—A petition is being signed for a new bridge across Capitol avenue at Fall creek; the petition will be presented to the Board of Public Works and County Commissioners.

**Richmond, Ind.**—Plans are ready and estimates are being prepared for the viaduct beneath the tracks of the Indianapolis Division of the P. C. C. & St. L. Railway at West Second street; there will be a 13½ foot passage, and the expense will be borne, 60 per cent. by the company and 40 per cent. by the city.—Fred Charles, City Engineer.

**South Bend, Ind.**—The Grand Trunk Western Railway Company will build an iron bridge across the river.—F. W. Egan, Detroit, Mich., Superintendent.

**Wichita, Kan.**—The Legislature has granted Sedgwick County the right to issue bonds for building a bridge across Arkansas river.

**Sheboygan, Mich.**—Council has granted a franchise to the Sheboygan Southern Railway to construct bridge across the Sheboygan river within the city limits.—Address Geo. N. Carr.

**Carthage, Mo.**—County Surveyor Coleman has been instructed to construct a reinforced concrete arch-bridge, two spans of 32 feet each, with 16-foot roadway, to cost about \$1,000; also a trestle approach 72 feet long with a 16-foot roadway, with concrete abutments and pedestals and a reinforced-concrete floor, to cost about \$1,200.

**St. Louis, Mo.**—The Joint Committee of the Council and House of Delegates has been authorized to expend \$10,000 to employ expert and other assistants and for other expenses incurred in selecting a site for the municipal bridge across the Mississippi river.

**Port Morris, N. J.**—The citizens are agitating the construction of a \$75,000 bridge across the Maurice river; the Cumberland County Board of Freeholders will be urged to consider the project.

**Lockport, N. Y.**—The city will soon petition State Superintendent of Public Works Stevens for permission to construct a bridge across the Erie canal, near the western part of the city for the purpose of suspending from it the various water supply mains to enter the city under the proposed Niagara river proposition.

**Cincinnati, O.**—The County Board has directed plans to be prepared for rebuilding bridge over Clough creek on the Ohio pike; Council is considering an ordinance to issue \$540,000 bonds to construct the Gilbert avenue viaduct.

**Cleveland, O.**—Appeal will be made to the Federal authorities to compel the Big Four Railroad to erect a new bridge at the Cincinnati slip.

**Toledo, O.**—An ordinance to authorize the Board of Public Service to advertise for bids for the construction of the bridge at Cherry street will be sent to Council; it is figured that this work can proceed and be finished

so that when the bonds are sold and the money provided the work can be started at once.

**Wooster, O.**—H. M. Knopp, County Surveyor, has completed plans and specifications for constructing the following bridges with concrete and stone abutments: One 65x14 ft. iron span, concrete floor bridge; one 50x14-ft. iron span, concrete floor bridge; one 45x14-ft. iron span, concrete floor bridge; one 55x14-ft. iron span, concrete floor bridge, and one 40x14-ft. iron span concrete floor bridge.

**Scranton, Pa.**—An ordinance is being considered by Council appropriating \$75,000 as the city's share of the cost of building the Mulberry street viaduct; the total cost will be \$230,000, of which the Scranton Railway Company will assume \$89,000, and the two railroads will be asked to pay the balance of \$66,000.

**Sharon, Pa.**—Council will build a bridge at Porter street.

**Waco, Tex.**—Mayor James B. Baker has recommended to the City Council a bond issue of at least \$50,000 for building permanent bridges of reinforced-concrete or something similar.

**St. George, Utah.**—Arrangements are being made to build a bridge across the Virgin river; estimated cost, \$3,000.

**Shenandoah, Va.**—The Shenandoah Bridge Company has been incorporated with a capital of \$4,000, to build a toll bridge.—H. H. Taylor, President; G. M. Harnsberger, Treasurer.

## MISCELLANEOUS

**San Diego, Cal.**—An election will be held, March 12, to vote on the question of issuing \$8,825 bonds for municipal improvements.

**Live Oak, Fla.**—Bids will be received, March 30, for the purchase of \$190,000 5 per cent. 30-year public improvement bonds.—M. L. Bennett, Chairman.

**Lexington, Ky.**—An ordinance renewing contract with the Home Construction Company for sweeping and cleaning the wooden and brick streets, is being considered by Council.—Thos. A. Combs, Mayor; J. E. Cassidy, City Clerk.

**Alma, Mich.**—Otis & Haugh have purchased \$10,000 5 per cent. park bonds at 102.375.

**Suttons Bay, Mich.**—The town will issue \$21,000 bonds for waterworks and a Town Hall.

**St. Paul, Minn.**—Bills are before Legislature to authorize an issue of \$50,000 bonds for high school, \$300,000 for sewers, and \$300,000 for parks and parkways.

**Hattiesburg, Miss.**—Council has decided to make the following allotments of the \$175,000 bond issue: \$40,000 for schools, of which \$20,000 is to go in the Fourth Ward, \$15,000 in the First Ward and \$5,000 for general adornment of school grounds; \$60,000 for sewers, of which \$10,000 will be invested in a crematory for the reduction of garbage; \$10,000 for bridges; \$25,000 for waterworks extensions; \$35,000 for street paving; new engine houses and other Fire Department necessities will be procured from current revenues.

**Jackson, Miss.**—Bids will be received, March 5, for the purchase of \$250,000 20-year municipal bonds.—A. P. Lusk, City Clerk.

**Kansas City, Mo.**—Council has under consideration the issue of \$1,100,000 bonds for improvements of waterworks, hospital, Fire Department, schools, etc.

**Niagara Falls, N. Y.**—The Board of Public Works has been authorized to purchase two new road scrapers, at a cost not exceeding \$500.—Mayor Douglass.

**Benwood, O.**—An agent of the Dixon Garbage Company, of Toledo, is making estimates on the construction of a garbage crematory, to cost \$35,000.

**Cincinnati, O.**—Mayor Dempsey will urge the building of an immense dyke along the river front as a barrier against floods; he proposes an immense wall of solid concrete or stone.

**Hamilton, O.**—Bids will be received, March 13, for the purchase of \$17,861  $\frac{1}{4}$  per cent. city improvement bonds.—Thad. Straub, City Auditor.

**Springfield, O.**—City Clerk Frank Crothers has been directed to advertise for bids for cement work for the coming season.—William H. Sieverling, City Engineer.

**Springfield, O.**—Three new greenhouses will be erected by the Park Board, and heated with a 35-horsepower boiler.—Frank McGregor, President.

**Harrisburg, Pa.**—The city authorities will soon call for bids for the purchase of \$589,800 public improvement bonds.

**Pittsburg, Pa.**—Council will authorize issue of \$398,000 bonds for construction of fire engine house, police patrol stations, the acquisition of sites for these buildings, the erection of an automobile garage in Schenley Park, the renewal and erection of bridges

and the re-macadamizing of streets and avenues; the issue of \$2,250,000 bonds for municipal improvements will be voted on before Greater Pittsburg becomes a fact.—George W. Guthrie, Mayor.

**Mineral Wells, Tex.**—Council has been authorized to issue \$10,000 40-year 5 per cent. improvement bonds.

**Selma, W. Va.**—Bids will be received, March 14, for the purchase of \$31,500 5 per cent. 34-year village improvement bonds.

## BIDS RECEIVED

**Pasadena, Cal.**—Council has just paid \$5,600 for a second size Mott steam fire engine, after a most satisfactory test.—Herman Dyes, City Clerk.

**Pensacola, Fla.**—The DeVogel Contracting Company was low bidder, February 15, for constructing new engine house at Columbia avenue and Madison street, at \$11,640; the P. S. Van Kirk Company, of Paterson, bid \$11,949, and Holster & Martin, \$12,610; the East Jersey Construction Company bid \$6,751.50, and Marcus Van Vliet \$6,490 on the mason and iron work; Edwards & Stevens \$468 for painting, Wall Bros. \$765, and John Karl \$750 on the plumbing work, and Chas. R. Newman \$69 for the electrical work; the Public Buildings and Park Committee has recommended to Council that the DeVogel Company be awarded the contract.

**Peoria, Ill.**—The Village Board of Peoria Heights has signed a contract with the Peoria Gas and Electric Company for lighting the village for five years, arc lights to cost \$67.50 each per annum.—Dr. N. A. Johnston, President.

**Everett, Mass.**—F. A. Houdlette & Co., of Boston, were, February 18, awarded contract to furnish approximately 76 tons of 6, 8 and 10-inch water pipe, at \$34.75 per ton and specials at 3 cents per pound; other bidders were: Donaldson Iron Company, Emaus, Pa.; U. S. Cast Iron Pipe and Foundry Company, Philadelphia; McWam Pipe Works, New York, and M. J. Drummond & Co., New York.—W. T. Vaughan, Clerk, Board of Public Service.

**St. Joseph, Mo.**—Bids for grading Garfield avenue were opened by the Board of Public Works, February 14, as follows: N. H. Starmer, 28 cents per cubic yard; D. B. Kelly, 28½ cents per cubic yard, and J. H. Hartman, 29 cents per cubic yard.

**Buffalo, N. Y.**—William Franklin was low bidder for constructing 3,964 feet of 2½ to 4½ feet circular brick sewer, 9-inch shell in trench 12.4 to 19.6 feet, clay and gravel excavation, with 15 brick connections, 219 6-inch house connections and 12 manholes, at \$25.880; wages of common labor \$2 per day; other bidders were: Miller & Franklin, Geo. W. Moore, Louis H. Gipp, Jos. F. Stabell & Co., Fred J. Mumm and Lawrence Savage & Co.—C. M. Morse, Deputy Engineer, Commissioner.

**Middletown, O.**—Thomas P. Strach, of Cincinnati, has been awarded contract by the State Board of Public Works for dredging the M. & E. canal from Middletown to Miamisburg.

**Portsmouth, O.**—Monroe & Son are the lowest bidders for the Drew sewer contract at \$7,966.

**Toledo, O.**—The Board of Public Service, February 15, awarded ten paving contracts, aggregating about \$70,000 in value, as follows: Lawrence street, Delaware to Detroit, Henry P. Streicher, \$7,649; Locust, Page to Austin, Kerlin Bros., \$10,242.50; alley between Main and Platt, Garrigan Bros., \$2,139.25; Jarvis, Sumner to Bloomfield, Kerlin Bros., \$3,426.10; Jarvis, Broadway to alley east of Linden, James Sheehan, \$3,754.75; Parker, Starr to Kelsey, James Sheehan, \$4,119.90; Bush, Michigan to Champlain, James Sheehan, \$1,532.85; Orchard, Stebbins to Stocking, Kerlin Bros., \$15,407.10; West Broadway, Broadway to Barnes, James Sheehan, \$10,552.45; Norwood, Detroit to L. S. & M. S., William McMahon, \$10,483.40.

**Chester, Pa.**—E. F. Schlecter has been awarded a contract to erect a steel tower and tank in Beechwood Park, Haverford township, for \$1,300, and E. J. Kerrick, to install a water system in the park for \$1,866 and a sewer system for \$1,360.

**Chester, Pa.**—Alex. Toppin has been awarded a 5-year contract for the collection of city ashes for \$21,000, and George D. Armstrong 1-year contract for collecting garbage, at \$3,300; bids for the collection of ashes were as follows: George D. Armstrong, one year, \$3,300; three years, \$12,000; five years, \$22,000; Alex. Toppin, one year, \$4,200; three years, \$12,000; five years, \$21,000. Bids for the collection of garbage were as follows: G. D. Armstrong, one year, \$3,300; three years, \$11,000; five years, \$22,000. Security, Fidelity Trust and Deposit Company, of Maryland, Charles Geary, one year, \$3,000; security, Empire State Security Company, Chester Collecting Company, E. R. Abrams, manager; one year, \$4,100, stating

that if agreeable to Councils would make collection during the night in the summer.

**Harrisburg, Pa.**—The Warner-Quinlan Company has been awarded contract for paving Cameron street, at \$1.79 for asphalt and 48 cents for granolithic curb; the Barber Company has the contract for Duck alley at \$1.89, no curbing to be laid.

**Pittsburg, Pa.**—The National Tube Company has been awarded contract by the Southern Pacific for 400 miles of 8-inch line pipe for an oil line in California, which will probably necessitate the starting up of the own plant.

**Meadville, Pa.**—A contract has been awarded the Epping-Carpenter Company, of Pittsburg, for a 3,000,000 gallon, direct-acting tripple-expansion pump, guaranteed duty, 95,000,000 foot-pounds per 1,000 pounds dry steam; the steam cylinders are to be 12, 19 and 33 inches; 14-inch plunger, 24-inch stroke; speed 130 feet per minute, at \$9,650.

**Williamsport, Pa.**—Rogers Brothers were low bidders for the Campbell street under-grade crossing, at \$58,340, the bid including a proposal of 4 cents per pound for steel, or \$17,400 for the complete bridge without steel trough, concrete, brick or hydrex felt, waterproofing, but including floor beams and stringers, 435,000 pounds of steel, and \$23,400 for the complete bridge as shown in plans, including steel troughs, concrete brick and hydrex felt, 585,000 pounds, and \$2,100 for waterproofing, making total of \$25,500; the bid on all other work, including excavation, building of abutments, etc., was \$15,440; the Wilkes-Barre Construction Company, Wilkes-Barre; Harman Brothers, Reading; Kennard & Higgins, Wilkes-Barre; H. B. & B. E. Felling, Fulton, N. Y.; Busch & Stewart, Williamsport, and the Pennsylvania Steel Company, Steelton, also submitted proposals.

### Civil Service Examinations

**Engineer Draughtsman.**—The U. S. Civil Service Commission announces examinations, March 13-14, to secure eligibles to fill vacancies in the position of engineer draughtsman, at a salary of \$1,600 to \$1,800 per annum. The duties of this position are confined to the engineering problems involved in first-class building construction. Applicants must have had five years' practical experience or an engineering degree and three years' practical experience. Apply for Form 1312.

**Civil Engineer Student.**—The U. S. Civil Service Commission announces an examination, April 3-4, to secure eligibles to fill vacancies in the position of civil engineer student at \$600 per annum, in the Office of Public Roads, Department of Agriculture. Apply for Form 1312.

**Chief Engineer.**—The United States Civil Service Commission announces an examination on February 27, to secure eligibles for position of Chief Engineer and Electrician at \$1,800 per annum in the U. S. Custom House building in St. Louis, Mo., and other vacancies as they may occur. Apply to U. S. Civil Service Commission, Washington, D. C., or to the Secretary of the local Board of Examiners for application Form 1052.

**Topographic and Cartographic Draughtsman.**—The U. S. Civil Service Commission announces, on March 13-14, an examination to fill vacancies in the position, at \$1,000 per annum, in the office of the Chief of Staff, War Department. Apply for Form 1312.

**Draughtsman and Surveyor.**—The U. S. Civil Service Commission announces an

examination, on March 20-21, to secure eligibles to fill a vacancy in the position of draughtsman and surveyor, at \$150 per month, in the office of the Assistant Engineer, Twelfth Light-House District, Honolulu, Hawaii. Apply for Form 1312.

**Heating and Ventilating Draughtsman.**—The U. S. Civil Service Commission announces an examination, March 13-14, to secure eligibles to fill vacancies in the position of heating and ventilating draughtsman, at a salary of \$1,200 to \$1,600 per annum. Apply for Form 1312.

**Topographic Draughtsman.**—The U. S. Civil Service Commission announces an examination, March 6, to secure eligibles to fill a vacancy in the position of draughtsman, at \$700 per annum, in the Coast and Geodetic Survey, Washington, D. C. Apply on Form 304.

**Clerk-Draftsman.**—The United States Civil Service Commission announces an examination on February 27-28, to secure eligibles to fill vacancies in the offices of the Surveyors General of the Land Office Service, namely: one draughtsman, \$1,400 per annum, San Francisco, Cal., and another at \$4 per diem; two copyists-draftsmen, \$4 per diem each, Phoenix, Ariz.; one draughtsman, and three copyists-draftsmen, at \$4 per diem each, Reno, Nev.; one draughtsman, \$1,400 per annum, Elsmarck, N. D. Apply to Civil Service Commission, Washington, D. C., or to the Secretary of the local Board of Examiners for application Form.

**Surveyor.**—The U. S. Civil Service Commission announces an examination, February 27, to secure eligibles to fill vacancies in the position of surveyor in the Philippine Service at a salary of \$1,400 per annum. Apply to U. S. Civil Service Commission, Washington, D. C., for Forms 2 and 375.

### LOWEST BIDS RECEIVED FOR SEWER CONSTRUCTION

Length, Feet	Inside Dimensions	Material	Thickness of Shell	Depth of Trench to Bottom of Sewer	Material to be Excavated	Ground, Water to be Handled?	Kind of Paving to be Excavated and Relaid	Price Bid per Lineal Foot	Mean of all Bids	REMARKS
SPRINGFIELD, MASS.										
2,086	2'2"x3'3"	elliptical brick		16.0	Fine running sand and water	Yes		\$10.94		
670.4	1'10"x2'0"	egg shaped brick		9.0	Gravel			3.58		
861	20"	Vit. Pipe		9.1	Sand, Clay	Yes		1.56		Relaying.
320	18"	"		12.5	Sand			1.53		
626	18"	"		10.0	Sandy loam			2.30		
167	18"	"		8.5	Sand			2.28		
174	12"	"		8.0	Gravel			1.72		
200	12"	"		10.0	Clay filling			2.06		Relaying.
351	12"	"		11.0	Sandy loam			1.39		
321	12"	"		11.5	"			1.99		Relaying.
100	12"	"		8.5	Sand			1.00		
378	10"	"		7.5	Gravel			0.94		
164	10"	"		9.5	Muck filling			1.24		
200	10"	"		7.0	Sand			0.73		
200	10"	"		11.7	Sandy loam			1.59		
130	8"	"		6.5	Clay, loam, peat			0.99		
2,500	8"	Vit. Pipe		7.0	Clay			0.89		Includes 10 manholes.
414	8"	"		7.0	Red shale			0.93		Includes 2 manholes. Flushtanks \$95 each, including flushing appliances.
DES MOINES, IOWA, JAN. 21, 1907										
1,364	30"	Vit. Pipe		7.5	Clay	Yes		3.07		Price includes 4 manholes. Wages of common labor \$1.75 for 9 hours.
VAN BRUEN, ARK., JAN. 22, 1907										
2,660	6"	Vit. Pipe		0 to 6	Sand, Clay	No	No paving.	0.34	0.34	Wages of common labor \$1.50 per day. Manholes \$3 per foot. Flushtanks, including flushing appliances, \$45 each.
3,392	8"	"		0 to 6	"	"	"	0.49	0.415	
4,468	8"	"		6 to 8	"	"	"	0.40	0.73	
4,360	8"	"		8 to 14	"	"	"	0.40	0.73	
1,100	10"	"		0 to 8	"	"	"	0.40	0.555	
1,775	12"	"		0 to 6	"	"	"	0.56	0.60	
CLEVELAND HEIGHTS, O., DEC. 18, 1906										
875	36" circ.	1:2 1/2 concrete	5"	7.5	Clay	No		3.65		Wages of common labor \$1.75 per day. 8-foot manholes, \$30.
640	30"	1:2 1/2 concrete	5"	8.0	"	"		3.40		
930	24"	Vit. Pipe	Stand	7.5	"	"		1.60		
580	20"	"	"	7.5	"	"		1.30		
400	15"	"	"	7.5	"	"		1.07		
740	12"	"	"	7.5	"	"		0.95		
124	10"	"	"	7.5	"	"		0.80		
1,480	8"	"	"	8.5	"	Yes		0.80		
KANSAS CITY, MO., DEC. 20, 1906										
730	8 1/4"	1:2 1/2 concrete	12"	0 to 18	Earth, Rock	Yes	No paving.	8.20		Wages of common labor \$1.50 to \$2 per day. Prices include rock excavation.
406	80"	"	12"	"	"	"	"	8.20		
1,104	78"	"	11 1/2"	"	"	"	"	8.20		
650	72"	"	11 1/2"	"	"	"	"	8.20		
650	64"	"	10"	"	"	"	"	8.20		
504	62"	"	10"	"	"	"	"	7.20		
608	56"	"	9"	"	"	"	"	7.20		
205	50"	"	9"	"	"	"	"	7.20		



## PATENT CLAIMS

842,206. Concrete-Mixer. John E. Kenisell and Clarence C. Lowry, Detroit, Mich. Serial No. 278,910.

In a mixing-machine, the combination with a supporting-frame, of a trough secured to said frame, mixing and conveying arms in said trough, means for actuating said arms, and a hopper consisting of ends secured to the trough and provided with openings and sides hinged at their lower edges to the trough and formed with inwardly extending end flanges having curved slots, and bolts extending through the openings in the ends and the slots in the flanges.

642,286. Sewage Elevating and Discharging Apparatus. Eric A. Wilson and Charles Rigdon, Duluth, Minn., assignors of one-fourth to Daniel D. Murray and one-fourth to Thomas F. McGilvray, Duluth, Minn. Serial No. 258,412.

The combination of a cylinder or tank, a conduit for a flowing power-supply discharging intermittently into one end of said tank, a conduit for a liquid or flowing substance to be acted upon, discharging intermittently into the opposite end of said tank, a piston in said tank positioned at all times between the points of discharge into said tank of said power-supply and of the liquid or flowing substance to be acted upon, valvular means adapted to govern the discharge of the power-supply into said tank and adapted to be operated by the said power supply, secondary valvular means adapted to govern the power-supply to the first said valvular means, mechanical means for operating said secondary valvular means and adapted to be actuated by the said liquid or flowing substance to be acted upon, mechanical means including said piston for retracting said secondary valvular means and adapted to be actuated by said power-supply, an exhaust-conduit extending from the said opposite end of said tank upwardly and away from said tank, a check-valve adapted to prevent the return of matter ejected from said opposite end of said tank through said exhaust-conduit, a check-valve adapted to prevent the return of matter to its source after entering said opposite end of said tank, and an exhaust-conduit governed by the first said valvular means, adapted to convey away the exhaust of the said power-supply.

## INCORPORATIONS

Arrow Can Co., New York; to manufacture ash and garbage cans, pails, tanks, etc.; capital, \$25,000. Incorporators: Wilbur C. Brown, Robert F. Routh, Robert Gibson, Jr., 60 Wall street, New York.

The Bibb Power Company, Macon, Ga.; capital, \$100,000. Incorporators: Q. J. Marse, M. Fenton Marse and N. H. Marse, of Macon.

The Concrete Association of America, Inc., New York; exhibition of concrete in various uses, deal in real estate; capital, \$5,000. Incorporators: Ross F. Tucker, 4 West Twenty-second street, New York; H. C. Turner, 11 Broadway, New York; Merrill Watson, 256 Broadway, New York.

The East Stroudsburg Light, Heat and Power Co., Stroudsburg, Pa.; capital, \$10,000. Gore-Duggan Engineering Co., New York; general contracting work of all kinds; capital, \$10,000. Incorporators: Frank E. Gore, Edward J. Duggan, James J. Hoey, 206 Broadway, New York.

The Green Electrical Manufacturing Company, Chicago, Ill.; capital, \$7,500; to manufacture and deal in electrical goods. Incorporators: William L. Lawton and others.

The Hobart Electric Manufacturing Company, Troy, O., has increased its capital stock from \$100,000 to \$200,000.

The Hogue Contracting Company, Elyria, O. Capital, \$10,000. Incorporators: Solomon Mendelson, C. B. Hogue, L. B. Fauver, Mamie Chandler and Lee Stranf.

Maine Artificial Stone Co., Portland, Me.; cement, lime, stone, etc.; capital, \$10,000. President, R. H. Higgins; treasurer, A. W. Higgins; clerk, R. D. Higgins, all of Portland, Me.

The Tide Water Power Co., Wilmington, N. C.; to bring power from the power house of the Rockingham Power Company; capital, \$750,000. Incorporators: N. F. H. Gouverneur, E. W. Van W. Lucas and others.

The Strasburg Heat, Light and Power Co., Strasburg, Pa.; capital, \$80,000.

The F. D. Stevenson Contracting Company, Cleveland, O.; T. D. Stevenson, V. V. Stevenson, L. M. Henders, Samuel P. Dunn and J. A. Burke.

Sunbury & Trevorton Electric Railway Company, from Sunbury to Plum Creek, two and a half miles; Sunbury, Pa.; capital, \$15,000; president, Monroe H. Kulp, Shamokin.

Police & Fire Alarm Telephone Co., Rochester, N. Y.; to manufacture and install police and fire alarm systems; capital, \$500,000. Incorporators: George F. Roth, Charles T. Chapin, James L. Hotchkiss, Merton E. Lewis, Clarence W. McKay, Rochester, N. Y.

Victor Stone Co., Gouverneur, N. Y.; to quarry stone, manufacture cement blocks, etc.; capital, \$15,000. Incorporators: A. B. Wing, Walter N. Kernan, Francis K. Kernan, Utica, N. Y.

Warren Electric Manufacturing Co., Augusta, Me.; machinery of all kinds; capital, \$175,000. President, M. M. Spinney; treasurer, E. J. Pike; clerk, C. L. Andrews, all of Augusta, Me.

Water Supervision Co., New York; inspection and supervision of supply of gas, water, electricity, steam or power; capital, \$10,000. Incorporators: Thomas J. King, Tompkinsville; Charles T. Weeks, Jersey City, N. J.; Charles Curran, 425 Seventh street, Brooklyn.

THE almost World-wide tendency among the municipalities to go over to the wood-block in preference to the other pavements has been brought about by its record on the London and Paris foundations. We can sell you this foundation at one-half the London and Paris prices. Over twenty-five years ago the creosote wood paving-block fell into utter disrepute in America, on account of the American foundation. The Nash Road, Borough of Brooklyn, New York City, U. S. A.

WANTED—Superintendent for shaft sinking near Pittsburg; shafts to be sunk for coal, and timbered throughout; please state experience and salary expected. Address No. 159, Municipal Journal and Engineer.

REINFORCED-CONCRETE superintendent; pay \$200. Address No. 148, Municipal Journal and Engineer.

YOUNG MAN, having experience as chainman, rodman, computer, understands transit, level, can do office work and draughting, desires position. Address 211, Municipal Journal and Engineer.

ATTRACTIVE openings for experienced draughtsmen—architectural, electrical, mechanical, structural—\$900 to \$2,100. Write us to-day, stating position desired. Hapgoods, 305 Broadway, New York.

## Municipal Public Works

Their Inception, Construction, and Management

By S. Whinery, C. E. 341 pages. Cloth, \$1.50, net.

CONTENTS—Importance of Municipal Public Works. Municipal Organization. Preparations for Municipal Work. Direct Work vs. Contract Work. Advertising Opening Bids, and Awarding Contracts. The Contract. The Contractor. The Supervision of Public Work. Maintenance and Repair of Public Works. Economy, Real and False. Guaranteeing Public Work. Special Assessments. Municipal Accounts and Uniform Accounting. Municipal Ownership. Quasi-Public Corporations and Their Control.

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We get every piece we can, of course, but the matter of greatest concern to us is that every piece shall be GOOD

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## VITRIFIED PAVING BRICK AND BLOCK



Repressed and Wire Cut

LET US FIGURE WITH YOU

THE UNITED BRICK COMPANY Conneaut, Ohio

## Proposals

### Viaduct

New Orleans, February 21, 1907.  
Pursuant to Ordinance No. 4301, N. C. S., sealed proposals will be received at the office of the Comptroller in the City of New Orleans until the hour of 1 p. m., Monday, April 29, 1907, for the construction of a viaduct over the tracks of the Southern Pacific R. R. Co., on the line of Newton street in Algiers, in accordance with the plans and specifications on file in the office of the City Engineer.

Deposit \$1,000.00 with the City Treasurer and his receipt enclosed with bid.

Bond in an amount equal to the contract price.

The City Engineer will furnish bidders with a blank form of proposal. No proposal will be considered unless submitted on such form.

Bidders must have paid their City license in order that their bids may be accepted.

The city reserves the right to reject any and all bids.

CHAS. R. KENNEDY, Comptroller.

### Sealed Proposals for Paving

Watertown, N. Y., February 23, 1907.

Sealed proposals will be received by the Board of Public Works at the office of the City Engineer, in the City Hall, Watertown, N. Y., until 5 p. m., March 14, 1907, for the construction of about 3,400 square yards of pavement in Court street, extending from the end of the present pavement near Arch street to the southerly end of the Court-street bridge, together with the necessary curbing, catch basins, and such other work and materials as may be necessary for the proper completion of the pavement. Bids will be received for each of the following kinds of pavement:

With sheet asphalt pavement on concrete base; with bitulithic pavement with trap rock surface; with sheet asphalt pavement with vitrified paving brick along the street car rails and asphalt between, with concrete base; with bitulithic pavement, with vitrified paving brick along the street car rails, and bitulithic between, with trap rock surface; with wood block pavement on concrete base; with Medina block pavement on concrete base.

Samples of the materials to be used in the different kinds of pavement must be deposited with the City Engineer at or before the time of making the bid.

Plans and specifications for each of the above kinds of pavements are open to public inspection and may be seen at the office of the City Engineer, at the City Hall, from whom blank proposals can be obtained. The Board of Public Works reserves the right to reject any and all bids.

A certified check for one thousand dollars, payable to the order of the City Treasurer, Watertown, N. Y., must accompany each bid.

BOARD OF PUBLIC WORKS.

HENRY E. BAKER, City Engineer.

### Sealed Proposals for Paving

Watertown, N. Y., February 23, 1907.

Sealed proposals will be received by the Board of Public Works at the office of the City Engineer, in the City Hall, Watertown, N. Y., until 5 p. m., March 14, 1907, for the construction of about 15,000 square yards of pavement in Academy street, extending from the easterly margin of Washington street to the easterly margin of Hamilton street, together with the necessary curbing, catch basins, and such other work and materials as may be necessary for the proper construction of the pavement. Bids will be received for each of the following kinds of pavement, to wit:

Sheet asphalt pavement on concrete base; bitulithic pavement with trap rock surface; wood block pavement on concrete base.

Samples of the materials to be used in the different kinds of pavements must be deposited with the City Engineer at or before the time of making the bid.

Plans and specifications for each of the above kinds of pavements are open to public inspection and may be seen at the office of the City Engineer, at the City Hall, from whom blank proposals can be obtained. The Board of Public Works reserves the right to reject any and all bids received.

A certified check for one thousand dollars, payable to the order of the City Treasurer, Watertown, N. Y., must accompany each bid.

BOARD OF PUBLIC WORKS.

HENRY E. BAKER, City Engineer.

### Sealed Proposals for Paving

Watertown, N. Y., February 23, 1907.

Sealed proposals will be received by the Board of Public Works at the office of the City Engineer, in the City Hall, Watertown, N. Y., until 5 p. m., March 14, 1907, for the construction of about 1,800 square yards of pavement in Factory and Pearl streets from the northerly end of the bridge across the southerly branch of Black river to the north-

erly margin of Water and Moulton streets, together with the necessary curbing, catch basins, and such other work and materials as may be necessary for the proper completion of the pavement. Bids will be received for each of the following kinds of pavement:

With sheet asphalt pavement on concrete base; with bitulithic pavement with trap rock surface; with wood block pavement on concrete base; with Medina block pavement on concrete base.

Samples of the materials to be used in the different kinds of pavement must be deposited with the City Engineer at or before the time of making the bid.

Plans and specifications for each of the above kinds of pavement are open to public inspection and may be seen at the office of the City Engineer, at the City Hall, from whom blank proposals can be obtained. The Board of Public Works reserves the right to reject any and all bids.

A certified check for one thousand dollars, payable to the order of the City Treasurer, Watertown, N. Y., must accompany each bid.

BOARD OF PUBLIC WORKS.

HENRY E. BAKER, City Engineer.

### Sealed Proposals for Paving

Watertown, N. Y., February 23, 1907.

Sealed proposals will be received by the Board of Public Works at the office of the City Engineer, in the City Hall, Watertown, N. Y., until 5 p. m., March 14, 1907, for the construction of about 1,000 square yards of pavement in Union street extending from the southerly margin of State street to the northerly margin of Franklin street, together with the necessary curbing, catch basins, and such other work and materials as may be necessary for the proper completion of the pavement. Bids will be received for each of the following kinds of pavement, to wit:

Sheet asphalt pavement on concrete base; bitulithic pavement with trap rock surface; wood block pavement on concrete base.

Samples of the materials to be used in the different kinds of pavements must be deposited with the City Engineer at or before the time of making the bid.

Plans and specifications for each of the above kinds of pavements are open to public inspection and may be seen at the office of the City Engineer at the City Hall, from whom blank proposals can be obtained. The Board of Public Works reserves the right to reject any and all bids.

A certified check for one thousand dollars, payable to the order of the City Treasurer of the City of Watertown, N. Y., must accompany each bid.

BOARD OF PUBLIC WORKS.

HENRY E. BAKER, City Engineer.

### Bridge

Camden, N. J.

Bids are invited for building a superstructure 96 feet long for a through truss highway bridge over Big Timber Creek, at Clements Bridge, between the Counties of Camden and Gloucester, N. J. Bids will be received, immediately opened and publicly read at the regular meeting of the Camden County Board of Chosen Freeholders to be held in Camden on Wednesday, March 13, at 11 a. m.

Plans and specifications will be mailed to any address on receipt of 25 cents on application to Fred W. George, Clerk, Camden, N. J., or can be seen at his office in Court House, Camden, N. J., at the office of Engineering News Pub. Co., or at the office of Chas. N. Bell, Clerk, Woodbury, N. J.

By order of both counties.  
J. J. ALBERTSON,  
Engineer in Charge for Camden and Gloucester Counties.

Dated, Magnolia, N. J., Feb. 15, 1907.

### Cement

Brandon, Manitoba, Can.

Sealed tenders addressed to the Chairman of Board of Works and endorsed "Tender for Cement," will be received by the undersigned until 12 o'clock noon of Thursday, April 11, 1907, for supplying from 6,000 to 8,000 barrels of Portland cement to the City of Brandon.

Specifications and form of tender may be obtained on application to W. H. Shillinglaw, City Engineer, Brandon, Man.

The lowest or any tender not necessarily accepted.

HARRY BROWN, City Clerk.

Brandon, Manitoba, Canada, February 8, 1907.

### Trunk Sewers

Office, Commissioners, District of Columbia, Washington, February 14, 1907.—Sealed proposals will be received at this office until 12 o'clock m., March 4, 1907, for constructing junction section of trunk sewers. Forms, specifications and necessary information may be obtained at room 43, District Building, Washington, D. C.

HENRY B. F. MACFARLAND,

HENRY L. WEST,

JOHN BIDDLE,

Commissioners, D. C.

**STREET LAMP ATTACHMENT**

The present flat flame gas light quickly changed to

**BEST MODERN LIGHTS.**

1 lamps giving 10-25 candle power made to produce 40 to 70 candle-power. No additional gas consumed

**CENTURY LIGHT & POWER CO.**  
35 Warren St., N. Y. City

**THE CLEARFIELD CLAY WORKING CO.**

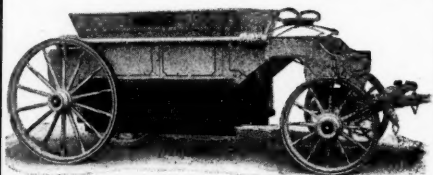
Manufacturers of  
"CLEARFIELD VITRIFIED  
PAVING BLOCK"

Vitrified Brick of all kinds

**CLEARFIELD**

## Loading Troy Wagons With Drag Scrapers

In excavating cellars and streets, where wagons are ordinarily loaded by hand, it is frequently more economical to build a light platform under which the wagons are driven and then loaded by means of drag scrapers. In the West, where wages of laborers are high, this method is especially to be recommended. A team and drag scraper can usually be counted upon to deliver 50 or 60 cubic yards of earth per day onto the platform, where it is dumped through a hole into the wagon below. If light, portable platforms and Troy Dump Wagons are used, the cost of excavation can be reduced far below the ordinary cost of hand-shoveling



into slat-bottom wagons. Troy Wagons are especially adapted for such work as this, because they are built to withstand the shock of earth falling several feet, and because the wagon box has a large capacity. Then, too, a Troy Wagon never leaks dirt along the street like dump wagons of other makes, for the steel bottom doors of a Troy Wagon lap upon one another and seal the bottom against leakage. An ever increasing number of contractors find the above described method of loading to be the most economic and satisfactory. Send for our Catalogue No. 2M.J. and learn more about the best bottom dump wagon made.

**The Troy Wagon Works Co.**

Mulberry and Race Streets

TROY, OHIO



## PERSONALS

AUGUR, E. P., was recently elected City Surveyor of Middletown, Conn., succeeding R. M. Wilcox.

BOYHAN, WILLIAM J., has been appointed Superintendent of Sewers of New York City, at a salary of \$5,000 per year.

BRANDEIS, CHARLES, C. E., has been appointed Consulting Engineer to the Minister of Public Works and Labor of Quebec, Canada, and will visit a number of the principal prisons in the United States, in order to study and make a report on the best system of electric lighting for prisons.

CLARK, W. G., a Civil Engineer, has been retained by the Board of Public Service of Toledo, O., to go over the specifications for a filtration plant for the city.

CONWAY, HUGH, former Assistant City Engineer of Cincinnati, O., has been appointed to a position in the Surveyor's office of Hamilton County, with headquarters in Cincinnati.

ELLIS, J. C., Engineer of the Kansas City Light and Power Company, has been engaged by the city of Topeka, Kan., to investigate conditions in connection with the construction of the Fifth Ward sewer, and he recently had a conference with Assistant City Engineer W. E. King, who set the stakes for the work.

FAIRLAMB, HUMPHREY A., was unanimously re-elected Building Inspector of Chester, Pa., at a recent meeting of Council.

GIBSON, JOHN S., Secretary of the Passaic Valley Sewerage Commission, and James Reilly, Secretary of the Newark Board of Trade, have been in Trenton recently in an effort to have the Passaic pollution bill passed without delay by the New Jersey Legislature, the measure having been reported favorably by the House Committee of Public Health.

JAMESON, JOHN, Chief of Police of Cohoes, N. Y., has tendered his resignation, to take effect March 1, when he will become a member of the Police Force of the New York Central Railroad; Capt. J. W. F. Neef, of the Central force, who has been in command of the men on the West Shore, has resigned, to become head of a new detective agency, with headquarters at Albany.

KEENE, WILLIAM F., has been appointed City Engineer of Central Falls, R. I.

KIRKPATRICK, J. C., has succeeded R. H. Lloyd as a member of the Park Commission of San Francisco, Cal., and on reorganization of the Board, W. H. Metson was elected Chairman, succeeding A. B. Spreckels, who has served on the Board twelve years, most of the time as its head, who declined a re-election; Captain John McLaren has been appointed Superintendent; Herbert Schmitz, Secretary, and Miss M. B. Fairman, Assistant Secretary.

LARKIN, DANIEL C., Chief of the Fire Department of Dayton, O., since 1880, and Treasurer of the International Association of Fire Engineers since 1889, has retired as head of the Department of the Ohio city.

LINDQUIST, JOHN, Superintendent of the Water Department of St. Paul, Minn., passed away recently at his home.

LINTON, HARVEY, for nineteen years City Engineer of Altoona, Pa., has resigned to become principal Assistant Engineer in charge of location of the Pittsburg, Binghamton & Eastern Railroad, which is to construct a 250-mile line from Binghamton, N. Y., through Towanda, Canton, Pa., and Roaring Branch to Clearfield, Pa.

LOGAN, WILLIAM S., Town Surveyor of Kearney, N. J., has been appointed City Engineer of Summit, N. J., vice Edward Rich, resigned.

ODEN, T. H., has been elected Mayor of Laurel, Miss., vice Oliver C. Hunt, deceased.

PEABODY, E. F., JR., has been appointed Contracting Manager at Minneapolis, Minn., of the American Bridge Company, succeeding Edward E. Green, who has been transferred to St. Louis, Mo.

REYBURN, JOHN E., a Congressman from Philadelphia, Pa., was recently elected Mayor of the city, defeating William Potter, former Minister to Italy; Mayor John Weaver was not a candidate.

ROUSSEAU, W. W. Jr., has been appointed Superintendent of Construction of the Waterworks Department of Troy, N. Y., a new position similar to that of First Assistant Superintendent of Waterworks, held by J. M. Connolly, resigned.

SCHULTZE, PAUL, has been reappointed City Engineer of Utica, N. Y.

SCOTT, N. W., Mayor of Ensley, Ala., has been spending a short vacation in Montgomery.

SLOCUM, CHARLES M., who has served as City Engineer of Springfield, Mass., since 1896, was recently reelected; it was inadvertently stated last week that Roswell L. Gardner, the Superintendent of Waterworks, was elected City Engineer. Mr. A. E. Martin is Superintendent of Waterworks of Springfield, Mass.

SMITH, H. W., of the Board of Health of East Liverpool, O., has recommended that a filtration plant be constructed at a cost of \$50,000, to be patterned after one at Marietta, which has a 4,000,000-gallon pump and two centrifugal pumps.

TANNER, J. M., formerly Assistant City Engineer of Pittsfield, Mass., has been made General Manager of an office of F. T. Ley

& Co., general contractors of Springfield, Mass., which was opened recently in Pittsfield.

VOGLESON, JOHN A., formerly First Assistant Chief Engineer of the Filtration Bureau of Philadelphia, Pa., has been appointed Chief of the Bureau, succeeding Frank L. Hand, who resigned a year ago, at a salary of \$6,000 a year.

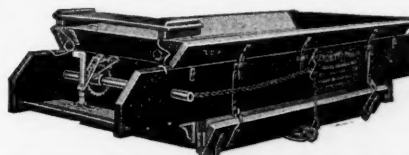
WELLS, ROLLA, Mayor of St. Louis, Mo., is making a trip to Panama, with the commercial clubs of several cities, and during his absence the reins of government are held by President H. A. Forman, of the City Council.

WHEELER, WILLIAM, of Boston, Mass., has been engaged to prepare plans for the proposed sewerage system for Winchester, Ky.

## THIS DUMP-BOX

## Fits Any Gear Wagon

Is operated entirely with the foot. Endorsed by contractors everywhere. Its many good features will be explained upon application.



EVERETT MFG. COMPANY, 44 Lake St., Newark, N. Y.

WHEN you purchase a dump wagon, consider carefully the item of repairs. It is not alone the cost of a new part: the great expense lies in the two or three days' time lost while your outfit awaits the receipt of a new part from the factory.

Buy a wagon that is practically unbreakable because there is scarcely



anything to break. Demand simplicity and shun complicity. Then, in case the unexpected happened and a break comes, every part should be a wrought forging which can be mended by the nearest blacksmith in fifteen minutes. If you are interested, we are. Please write us. We have a representative near you.

THE HENRY M. GLENN WAGON CO.

32-40 Oak St.

Seneca Falls, N. Y.

## MR. CONTRACTOR:

Now, before you finish reading this issue, is the time to write for information and prices on

## SENDERLING PATENT DUMPING TRUCKS

Do not delay until you are busy. Investigate now and when you are busy you will have the knowledge that they are best.

WRITE TO-DAY.

The Senderling Mfg. Co.  
622 WEST 47th ST., NEW YORK CITY

## Trade Notes

**ASPHALT REPAIRS.**—Julian Scholl & Co., 126 Liberty street, New York City, in circular No. 57, describe an asphalt plant suitable for repair work on contracts of small size. Two steel sand dryers, mounted on wheels, heat the sand, which is delivered by elevator and chutes into a measuring box near the mixer. Three melting tanks are planned for the plant for a brick setting, or if preferred may be equipped with steel furnaces. Power is supplied by a boiler and engine. A mixer and other equipment necessary for a complete plant are included in the outfit.

**VALVES.**—The Eddy Valve Company, Waterford, N. Y., has issued a catalogue superseding the last issue, that of 1901. The line of goods made by this company, which has been in existence for fifty years, includes gate valves for all purposes, sluice gates, check, foot and air valves, indicator posts, filtration specialties and fire hydrants. Among the changes made since the last issue are the following: the end flanges for extra heavy 600-pound test valves have been modified to conform to manufacturers' standards for extra heavy fittings. A greater variety of sluice gates is shown.

**FILTERED WATER.**—The Federal Filtration Company, 141 Broadway, New York City, publishes a booklet describing its filters, which are adapted to households, office buildings, paper mills, cities and towns. The pressure filters of this company vary in size from 16 inches in diameter and 4 feet high to 8 feet in diameter and 20 feet long; the small filter has a one-inch inlet and outlet, a one-inch waste pipe, and a filtering capacity of 180-420 gallons per hour; the largest size has an eight-inch inlet and outlet, an eight-inch waste pipe and a filtering capacity of 18,000-24,000 gallons an hour. In the gravity type, the diameters vary from 15 to 21 feet, the height is 8 feet, the inlet, outlet and waste pipes vary from six-inch to ten-inch, and the filtering capacity from 21,000-33,000 gallons for the small and 42,000-63,000 gallons for the large size. The two figures of capacity given for each size of filter indicate the variations according to purity of water to be filtered.

**DETECTOR-METER.**—The Hersey Manufacturing Company, South Boston, Mass., has published a 1907 booklet on detector-meters. The meter is designed to meet the requirements of both water departments and underwriters. To satisfy the Water Department the fire service meter must be capable of measuring small drafts. To satisfy underwriters an unobstructed flow of water must be delivered in case of fire. To accomplish this a meter is set on a bypass around the detector-meter, which is on the main line. The detector is provided with a specially constructed check valve, which keeps the main line closed until the draft becomes more than can be taken care of by the small meter on the bypass. When the draft is sufficiently heavy to produce a drop in pressure on the outlet side of the check valve of six per cent. below the normal the detector opens and gives an unobstructed passage through the main line. The moment the clapper leaves its seat a small volume of water flows from the differential valve seat through a small indicating meter, and this water will continue to run as long as the clapper is off its seat, thus indicating positively if the detector has been open, and about how long.

**ROCK DRILL.**—The Ingersoll-Rand Company, 11 Broadway, New York City, has published a special catalogue dealing with rock drills, which contains 92 illustrations. It is stated that the company has built 80,000 rock drills, and it estimates that 90 per cent. of all rock drills now in use are of its make.

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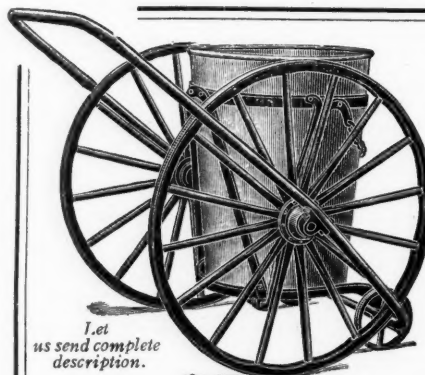
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